DEAR EDITOR,

The autonomic nervous system (ANS) is responsible for communication of the central nervous system (CNS) in peripheral organs that control the heart rate, blood pressure and respiratory activity. The control of the cardiac rhythm is associated with the high degree of variability, revealing an efficient adjustment of the autonomous system.

The ANS can be regarded as a model of a system with non-linear dynamics that exerts influence on the heart rate and blood pressure to ensure the proper functioning of the bodily organs, so that their real needs are met.

The HRV represents the variations in the duration of the intervals (R-R) of the electrocardiogram (ECG), which depend on the sympathetic and parasympathetic nervous systems. This method is a non-invasive form of autonomic evaluation, and its analysis can be performed either in the time domain (TD) as well as in the frequency domain (FD).

The study of the HRV reflects the interaction of the sympathetic and parasympathetic systems to the cardiovascular system, by means of afferent and efferent nerve endings in the myocardium, sinus node and atrioventricular node. This communication is of utmost importance in the increase or reduction of cardiac performance under different circumstances, which are influenced by baroreceptors, chemoreceptors, atrial and ventricular receptors, in addition to modifications in the respiratory, vasomotor and thermoregulatory systems.

Therefore, the HRV measures the oscillations in the interval between subsequent heartbeats, as well as between the continuous instant cardiac frequencies. These oscillations result from complex and non-linear interactions, and the HRV is classified as a measure of nervous-cardiac function that represents the interactions between the heart and the brain, as well as the dynamics of the ANS.

The changes in HRV suggest a condition of risk to health. In a healthy individual present, these values are high, with the normal functioning of the ANS, but, when with low frequency, it usually characterizes the presence of abnormality in the autonomic physiological function, requiring an investigation to obtain a precise diagnosis. In this way, the HRV is an appropriate tool to assess tensions in the cardiovascular system.

In this way, analyzing HRV signals becomes important, since this is a prognostic indicator of cardiac and systemic diseases, since it allows evaluating the balance between the autonomic influences on cardiac rhythm. Thus, the cost-benefit analysis, the extensive possibility of use and easy handling of the technique of HRV are an effective means for interpretations of the functioning of the ANS, thus confirming the HRV as a clinical tool to analyze the health of individuals.

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REFERENCES

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