Modifications of the non-linear parameters of heart rate variability in relation to the arithmetic calculation test

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Introduction: The nervous system is divided into voluntary nervous system and autonomic nervous system. The latter has been related to situations of stress and struggle usually results in an increase in heart rate, blood pressure and cardiac output.

Objective: To determine the modifications that the non-linear parameters undergo in the autonomic cardiovascular regulation of the heart rate variability subjected to mental stress through the arithmetic calculation test.

Material and Method: A non-observational quasi-experimental study was performed without control group before and after; the population constituted by 10 patients and the sample occupied the total of the population, in the Laboratory of Basic Sciences of the University of Medical Sciences of Santiago de Cuba Faculty No. 1 (March 2016-August 2018. The statistical analysis was performed by means of a set of statisticians contained in the SSPS version 21 package. Nonparametric techniques are used when checking the small size of the sample.

Results: Within the non-linear parameters that were modified with the stressor were SD1 (26.64 ± 15.33), SD2 / SD1 ratio (2.53 ± 0.68), Sample entropy (1.43±0) , 25), short-term fluctuation (1.28 ± 0.16), Correlation Dimension (2.41±1.52), maximum linear length (190.10 ± 120.12), recurrent frequency (27,10 ± 5,26), determinism (97.61 ± 1.28), multiscale entropy, minimum value (1.41 ± 0.65) and multiscale entropy, maximum value (2.08 ± 0.30).

Conclusions: The nonlinear parameters in the autonomic cardiovascular regulation of the SD2 / SD1 relationship, short-term fluctuation, maximum linear length, recurrent frequency, determinism and multiscale entropy experienced an increase in patients subjected to mental stress through the arithmetic calculation test. . The SD1,

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Correlation dimension and Simple Entropy parameters experienced a decrease in patients subjected to mental stress through the arithmetic calculation test.

Keywords: Mental stress, variability of heart rate, arithmetic calculation

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