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SYMBOLIC DYNAMICS METHODS IN THE EVALUATION OF BAROREFLEX ACTIVITY AFTER WHOLE-BODY CRYOTHERAPY

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ABSTRACT

The paper presents an example of symbolic dynamics methods application to evaluate baroreceptors activity in healthy men undergoing whole-body cryotherapy (*WBC*) [1]. A quantitative analysis of baroreceptors activity was made by using two time-synchronized biomedical signals: electrocardiogram signal (*ECG*) and systolic blood pressure signal (*sBP*). Both of them have been recorded by Task Force Monitor experimental system. The values of successive R-R intervals (*RRI*) obtained in the course of *ECG* recordings and *sBP* values were used to define the baroreceptors activity [3]. Based on the definition of physiological arterial baroreceptors reflex we defined the encoding key for intervals (*RRI*) and (*sBP*) [4]. We have introduced a frequency of appearing symbols connected with the baroreceptors activation as a measure of physiological activity of the baroreceptors [2]. Analysis of the designated frequencies before and after the treatment of *WBC* showed that the incidence of the sequences of symbols associated with the baroreceptors reflex is significantly lower after *WBC*. We also proposes a modified definition of baroreceptors activity that considers effective changes of *RRI* and *sBP*.

REFERENCES

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