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A Wavelet-based Method for Estimation of the Autonomic Balance after Experimentally Drug Administration (Conference Paper)

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Краткое описание

In the last decade, new techniques have been introduced for analysis of nonstationary cardiovascular signal. Widespread used are the short time Fourier Transform (STFT) and the autoregressive (AR) model. The present paper presents a Wavelet method for noninvasive evaluation of autonomic status after pharmacological modulation by analyzing rats' electrocardiographs (ECG) signal transient phenomena. Some methods of pre-processing R-R signal are presented that make time-frequency analysis of the heart rate variability signal more reliable. The results of an implemented algorithm for multi-resolution wavelet analysis of rats ECG signal after ethanol modulation of autonomic balance are presented. The proposed approach shows excellent numerical and computational performance. Clearly visualization of the respiratory behavior is accomplished with wavelet decomposition. The studies reported here draw attention to the feasibility of noninvasive access to the circuitry that governs cardiac autonomic function.

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Goncalves-Rosa, N. , Tavares, C. , Geraldes, V.

Application of a modified hilbert-huang transform to autonomic evaluation in metabolic syndrome

(2015) Proceedings - 2015 IEEE 4th Portuguese Meeting on Bioengineering, ENBENG 2015

Tavares, C. , Martins, R.C. , Oliveira, M.

A modified Hilbert-Huang algorithm to the assessment of heart rate variability

(2012) 2012 IEEE 2nd Portuguese Meeting in Bioengineering, ENBENG 2012

Girão, P.S. , Postolache, O. , Pereira, J.M.D.

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