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Electroencephalograms features of the early stage Parkinson's disease

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Abstract

© 2014, Pleiades Publishing, Ltd. A new method for analyzing the time-frequency dynamics of brain's background electrical activity is described. It is used to detect at least three main features of Parkinson's disease (PD) in its early stages: (1) hemispheric asymmetry in the time-frequency characteristics (EEG) in the central recording areas of the motor cortex, (2) the emergence in these recording areas of EEG rhythms in the frequency range of 4–6 Hz and its relation to electromyograms (EMG) and the mechanical tremor of contralateral limbs in the case of tremor-dominant PD, and (3) the disruption of the dominant rhythm corresponding to views generally held on the disorganization of different systems in PD.

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Keywords

accelerometer, electroencephalogram, electromyogram, electromyogram envelope, frequency synchronization, mechanical tremor, Parkinson's disease, wavelet spectrogram