Adaptive Classification of EEG Spectral Patterns: the comparison between healthy subjects and patients with different brain pathology

Al.A. Fingelkurts, An.A. Fingelkurts, E.Yu. Grin, V.A. Ermolaev, A.Ya. Kaplan

New technology of adaptive classification of EEG spectral patterns was worked out in order to obtain data with differential-diagnostic information. For this technology the set of standard EEG spectral patterns (n=32) was formed. During classification procedure special classification maps for brain were obtained. Also it was suggested to calculate special indices of map heterogeneity (IMH) and of map unstability (IMU).

Obtained classificational maps and IMH and IMU indices were specific for some patho-physiological states of brain. It was shown that brain pathology may reflected in the two opposite phenomena depending on the type and degree of pathological processes: (a) *EEG impoverishment* – decrease more then optimal level (norm) of unorganized activity (unclassified spectra), the number of different spectra types (heterogeneous of classification map) and classification map stability; (b) *EEG disorganization* – increase more then optimal level (norm) of unorganized activity (unclassified spectra), the number of different spectra types (heterogeneous of classification map) and decrease of classification map stability.