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POSTER PRESENTATION

SOME SPECIFIC QEEG APPLICATIONS RELATED TO
NEUROCOGNITIVE DYSFUNCTIONS

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Quantitative EEG assessment (QEEG) is a neuroinformatic tool, implying the following main steps: recording of multichannel EEG, signal processing and extraction of features such as mean spectral amplitude or power for multiple frequency bands and comparison of subject's data with a normative database corrected for time-of-day variations. To this date, QEEG has proved to be useful additional tool in the estimation and treatment of many disorders with underlying organic pathology. However, the full QEEG capacity for successful estimation of neurocognitive dysfunctions is still poorly investigated. This is an attempt to shed light over this problem by giving summary of three studies, each of which exploring QEEG patterns in various conditions that are often associated with cognitive dysfunction. The aim of the first study was to investigate the alpha rhythm parameters (8 - 12 Hz) in cystic fibrosis (CF) patients in order to distinguish eventual features that differ from healthy individuals. The second study deals with the existence of different qEEG subtypes in ADHD children associated with specific neurocognitive profiles. The third study is a meta-analysis of papers, published over period of 13 years, across 3 continents, which were examining the potential influence of extremely low frequency (ELF) electromagnetic field (EMF) components over human EEG patterns which are in the same range of frequencies.

Finally, a comparative QEEG investigation of neurocognitive parameters in healthy population was presented, with introduction of the brain-rate parameter as an integral brain state indicator.

