Editorial

iMedPub Journals
http://www.imedpub.com

Acta Psychopathologica
ISSN 2469-6676

2015
Vol. 1 No. 3:19

DOI: 10.4172/2469-6676.100019

Psychopathology and Quantitative Electroencephalography

Nensi Manusheva

Department of Psychophysiology, University Psychiatry Clinic, Skopje, Republic of Macedonia

Corresponding author:
Nensi Manusheva

manushevan@gmail.com

Head of Department of Psychophysiology, University Psychiatry Clinic, Skopje, Republic of Macedonia.

Tel: +389 2 3214 193

Citation: Manusheva N. Psychopathology and Quantitative Electroencephalography. Acta Psychopathol. 2015, 1:3.

Editorial Paper

The current development in the field of psychiatry is changing towards the search for biomarkers for certain diseases and changes in behavior. With the development of new technologies for brain imaging and with the progressive development of assisted computer analysis we gain information of structural and functional abnormalities. These investigations unambiguously confirm that psychiatric disorders have definite correlations with brain dysfunction. Among other neuroimaging modalities there is quantitative electroencephalography (QEEG) which offers some explanations that involve information about brain functioning and with the development of the neuroscience and the physics of complex systems allow us to find new features in the EEG signals.

The beginnings of the use of electroencephalography (EEG) in the field of psychiatry are almost century ago, with the first attempts of Berger who thought that EEG would represent mental activity. Moreover, Lemere in 1936 published a paper about reduction of alpha rhythm. However, very soon the disappointment in the diagnostic value of EEG for mental disorders began. Therefore, in the following decades EEG was used and introduced as a diagnostic method only for epilepsy and in the field of psychiatry was rarely used in routine clinical settings mainly to rule out some psycho-organic syndromes.

In the recent two or three decades there is a reappraisal of the use of QEEG analysis in the research of psychiatric diseases and behavioral syndromes. This is because the method is non-invasive and easy to apply. At the same time QEEG method provides direct indicators of neural activity in time resolution of milliseconds. Varieties of investigations were done in order to obtain neurophysiologic explanation for the disturbed behavior and different psychopathology. The possibility for quantitative analysis of the EEG signals gives us opportunity for precise measurement of frequencies, amplitudes and localization and allowed us the comparison between groups of interests.

From the analysis of the multitude of research papers we can conclude that high proportion of patient with psychiatric symptoms and disorders manifest abnormal aspects of EEG background activity. Because psychopathological phenomena probably depends on the disturbed connectivity between different brain regions and networks it is supposed that investigation of brain electrical activity with quantitative methods and techniques of analysis would have a key role in finding neurobiological correlations of psychopathology.

The main disadvantage is the standardization of the QEEG methodology and the determination of the meaning of the differences in the background activity. This is still a persistent challenge for physiological and clinical level of interpretation. The question is if the observed neurophysiologic QEEG profile results of the atypical behavior or it is just reflection of the same. The question whether the QEEG changes are a "state" or a "trait" marker still remains unanswered. In order to improve this we need more longitudinal studies with QEEG analysis in different stages of the disease, always taking into consideration the measurement of the actual psychopathology with adequate clinical scales and special precautions of the doses of the psychotropic drugs.

There is a need to emphasize that when we correlate the observed and the verified QEEG changes we should take into account whether the actual disorder is in active phase or is in remission. Furthermore, it would be very interesting to explore are the observed QEEG differences present in the prodromal state of the disease and to perform a study on the persons with high risk for psychiatric disorders.

Although for now we can use QEEG analysis only in scientific and investigational purposes there are trials in which this could help the clinicians in getting the answer why some of the patients did not respond to psychopharmacotherapy.

We can conclude that QEEG spectral analysis and parameters could be a method to investigate electrophysiological abnormalities in relation to psychiatric diseases and symptoms and disturbed behaviors and these neurophysiological phenotypes could help us with the distinction between some peculiar cases.

© Under License of Creative Commons Attribution 3.0 License