10. FLUCTUATIONS IN BETA FREQUENCY DURING THE TRANSITION TO INTERICTAL AND ICTAL STATES IN PATIENTS WITH MYOCLONIC SEIZURES

Author: Vataman Anatolie; **Co-authors:** Olaru Natalia, Chiosa Vitalie, Ciolac Dumitru, Groppa Stanislav

Scientific advisor: Groppa Stanislav, PhD, Professor, Academician of the Academy of Sciences of the Republic of Moldova, Neurology Department No. 2, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova.

Introduction. Juvenile myoclonic epilepsy (JME) is the most common syndrome among idiopathic generalized epilepsies manifested by generalized myoclonic and tonic-clonic seizures and spike-slow-wave (SSW) discharges on electroencephalography (EEG). Currently, the pathophysiological concepts addressing the generation of SSW in the JME are still incomplete.

Aim of study. We aimed to determine the temporal and spatial organization of functional networks and their dynamic properties.

Methods and materials. 40 patients with JME were included in the study. Using high-density EEG (HD-EEG) and 3T MRI epilepsy protocol in patients with JME, we investigated the organization and dynamic properties of brain network modules (communities) during the transition from the resting state to the interictal and ictal state.

Results. The average age of the patients included in the study was 25.4 ± 7.6 years, 25 women. Several modules comprising specific cortical and subcortical regions were identified depending on the analyzed time periods of the HD-EEG recordings. In particular, regions of the frontal and parietal lobes were more frequently involved in the time periods preceding the onset of interictal or ictal discharges and the basal ganglia during ictal discharges.

Conclusion. Fluctuations in beta frequency could initiate a trigger phenomenon in functional segregation that is further supported by increased clustering coefficient. The timing of observed changes in brain connectivity could serve as markers in the development of innovative, targeted, brain state-dependent therapies.

Keywords. Juvenile myoclonic epilepsy, neural networks.