Universität Basel

Publication

EEG Microstate Differences in Medicated vs. Medication-Naïve First-Episode Psychosis Patients

There has been considerable interest in the role of synchronous brain activity abnormalities in the pathophysiology of psychotic disorders and their relevance for treatment; one index of such activity are EEG resting-state microstates. These reflect electric field configurations of the brain that persist over 60-120 ms time periods. A set of quasi-stable microstates classes A, B, C, and D have been repeatedly identified across healthy participants. Changes in microstate parameters coverage, duration and occurrence have been found in medication-naïve as well as medicated patients with psychotic disorders compared to healthy controls. However, to date, only two studies have directly compared antipsychotic medication effects on EEG microstates either pre- vs. post-treatment or between medicated and unmedicated chronic schizophrenia patients. The aim of this study was therefore to directly compare EEG resting-state microstates between medicated and medication-naïve (untreated) first-episode (FEP) psychosis patients (mFEP vs. uFEP). We used 19-channel clinical EEG recordings to compare temporal parameters of four prototypical microstate classes (A-D) within an overall sample of 47 patients (mFEP n = 17; uFEP n = 30). The results demonstrated significant decreases of microstate class A and significant increases of microstate class B in mFEP compared to uFEP. No significant differences between groups were found for microstate classes C and D. Further studies are needed to replicate these results in longitudinal designs that assess antipsychotic medication effects on neural networks at the onset of the disorder and over time during illness progression. As treatment response and compliance in FEP patients are relatively low, such studies could contribute to better understand treatment outcomes and ultimately improve treatment strategies.