Aim: The aim of our study was to find out EEG markers of inhibitory control in human.

Introduction: The voluntary inhibition is an important component of cognitive control. It is strong in healthy adults and weak in people with schizophrenia. The cortical mechanisms of inhibition are associated with event-related potentials (ERPs). In the case of a saccadic response some new EEG correlates of inhibition could be found.

Methods: Sixteen healthy right-handed subjects (18–22 years) participated in the study. We used a modified “Go/No go delay” paradigm with long interstimulus interval (2800–3000 ms). The task involved two types of target stimuli (“Go”, “No go”) with 50% probability. EEG and saccades were recorded simultaneously. ERPs were determined by means of coherent averaging relative to target stimulus onset. The EEG brain mapping was used to depict spatial dynamics of P1.

Results: P1 peak latency was 90–140 ms and tended to increase in cases of inhibition (by 6 ± 0.5 ms, p < 0.05). In the “No go” situation P1 amplitude was significantly lower than that in case of “Go” stimulus presentation (by 3.3 ± 0.7 mkV, p < 0.05). Regardless of the place where “No go” stimulus appeared, P1 amplitude was significantly higher on the right hemisphere, that is known to be the dominant one for inhibitory control. The EEG mapping data demonstrate the “bottom-up” spreading of P1 foci in “No go” conditions. It also indicates inhibitory processes.

Conclusion: The spatiotemporal parameters of P1 component in “Go/No go delay” paradigm reflect inhibitory processes. Therefore, P1 can be used as EEG marker of inhibitory violations in the clinical research. Our current research involves as subjects the patients with schizophrenia and ultra-high risk patients, as they demonstrate weakened the inhibitory processes. The data would contribute to the reliable diagnostics of schizophrenia at its early stages and to the plausible correction of cognitive impairments.

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Antidepressive potential of aqueous extract of common vervain (V. officinalis L. Verbenaceae) and molecular docking studies of its main components as potential antidepressive agents

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Introduction: Common vervain is a plant used in traditional medicine. Its AE contains a vast number of compounds, hence its significant pharmacological potential.

The monoamine hypothesis is the central theory of depression, and a majority of conventional antidepressants act on the monoaminergic system.

Methods: Experiments were conducted on Swiss albino sexually mature male mice. There were 6–8 animals in each of 5 subgroups (imipramine; fluoxetine; two different doses of AE – AE I, II; and VS); Forced Swimming Test (FST) and Tail Suspension Test (TST) were used to assess the antidepressive effect.

Molecular docking experiments were performed using the programme AutoDock 4.2, with 3D structures of crystallized proteins from the PDB database and 3D structures of ligands generated by the software Avogadro 2 0.8.0.