

Abstract

Title: Measuring electrical brain activity during stimulation of trigger zones from concept of Vojta principle

Objectives: The aim of this study is to clarify whether there is a change in the electrical brain activity evaluated by the sLORETA program during the stimulation of trigger zones according to the Vojta concept. The source activity during stimulation of trigger zones was scanned from the scalp EEG and compared with the sLORETA program with the source activity measured at rest, before and after the stimulation of the trigger zones.

Methods: The research was conducted on 11 healthy adult subjects. The entire research group is consisted of women aged in range 19-32. The data was obtained from the scalp EEG before, during and after stimulation of trigger zones according to Vojta concept. For each proband the measurement of resting EEG with both open and closed eyes (2 x 10 minutes) was first performed, then the measurements were taken during the stimulation of trigger zones with open and closed eyes (2 x 15 minutes). Finally, a resting EEG was measured, alternating open and closed eyes after five minutes (4 x 5 minutes). There was a pause of at least 15 minutes between each stimulation of trigger zones. The order of open and closed eyes during resting EEG and during stimulation of trigger zones was randomized. The data obtained from the experiment was processed in the sLORETA program and displayed in the 3D Talairach atlas. In the statistical model of the sLORETA program, localization of electrical activity differences by pairwise t-test with logarithmic transformation of the aliasing parameter 0.8 was calculated with a permutation method utilizing 5000 randomization at the significance level $p \leq 0.10$ with correlation for repeated testing

Results: Obtained data show the occurrence of statistically significant brain activity in two different compared paired groups. Statistically significant changes have been revealed by comparing status during open-eye stimulation versus status before stimulation with open eyes in the alpha-2 frequency band in motor cortical regions, sensory cortex, and in areas representing emotional reactivity. A statistically significant difference in the alpha-2 frequency band was also revealed by comparing the condition before stimulation with closed eyes and after stimulation with closed eyes. Here we observe similar changes as when comparing open-eye stimulation versus condition before stimulation with open eyes - increased activity in motor cortex and in areas representing emotional reactivity.

A similarity was also revealed between condition triggered by stimulation of trigger zones with brain regions representing the active default mode network.

Keywords: Vojta therapy, Brodmann area's, EEG, sLORETA, default mode network