Regional interaction structure of brain biopotentials during different verbal tasks in phonologic language level

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Abstract: The regional interaction structure of brain biopotentials has been studied in adults during phonemic verbal tasks: phoneme recognition in auditory presented words, generating words from auditory presented set of phonemes and controlled word association. Using cross-correlation and coherent analyses of EEG we observed differences in spatio-temporal structure of brain biopotentials interaction. Noticeable intensification of hemispheric interaction was observed during phoneme recognition, especially in theta and delta frequency bands between temporal areas of both hemispheres. During generating words the changes in the hemispheric interactions were most pronounced in the temporal, especially in Wernikes zone, temporo-parieto-occipital areas of both hemispheres. Remarkable increasing of regional interactions in occipital areas with decreasing interactions in frontal areas was observed during controlled word association. Our data shown that differences in regional interaction structure of brain biopotentials during verbal tasks in phonemic language level depends of different task performance in spite of phonological specificity tasks.