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Progressive neurological disorders

PSYCHOPHYSIOLOGICAL AND NEUROPSYCHOLOGICAL STUDY OF CATEGORIZATION PROCESS IN PARKINSON'S DISEASE

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AIM:

Parkinson's disease (PD) is one of the most frequent pathologies in elderly, often causing a disability due both to motor and cognitive disturbances. Among the last the categorization problems were revealed: a significant decrease of semantization index - grouping of words in fluency tests (Glozman, 1996). The categorization is an important psychological means for objects recognition and decision-making. The aim of the study was to look for brain mechanisms of categorization disturbances in patients with PD.

Material and methods:

11 PD patients and 10 control healthy subjects had to differentiate three semantic categories of words, presented on the screen (animals, objects and actions) during EEG registration. Increased latency and mistakes indicated categorization difficulties. Cerebral mechanisms were determined with the author's method - "Microstructural analysis of oscillatory brain activity" (Danilova, 2002-2012) based on the pacemaker hypothesis of the origin of EEG rhythms. The presented results were obtained through localization of the dipole sources of frequency-selective theta generators in brain structures using stereotaxic maps (Talairach, Tournoux, 1988).

Results:

The data received indicate, that in PD there is a disturbance of interactions between cortical and striapallidar systems responsible for categories recognition in healthy subjects. Recognition of animals in norm includes an activation of the dipole sources of frequency-selective generators in the temporal lobe (Fusiform G.), anterior thalamic nucleus, exstrastriate cortex (Lingual G. BA19).

Conclusions:

The category of animals is related to fronto-striato-thalamic brain system that forms and actualizes categories. The microstructural analysis of oscillatory brain activity permits to determine brain structures realizing categorization process in such form of pathological elderly as Parkinson's disease.

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