

8th European Neurology Congress

September 21-23, 2016 Amsterdam, Netherlands

Quantitative EEG in Parkinson's disease before and after standardized tests on fatigue

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Objectives: Parkinson's disease with dementia (PDD) is characterized by changes in spectral power and EEG-coherence, which become stronger with the progression of dementia. In Parkinson's disease there is found increase of slow wave activity on the early stages, which could be visualized more with the specific cognitive tasks, especially tests on fatigue.

Aim: The aim was to evaluate spectral power and EEG-coherence in PD group and healthy elderly controls, to find their reactivity before and after standardized tests on fatigue before and after short and long-term anti-dementia treatment. The tests on fatigue were performed in order to evaluate cognitive reserve, dynamic and efficacy of treatment. The probe on fatigue included two tests on attention – 10 minutes per each test. The degree of fatigue was evaluated by increasing the mistakes from first to last minute of both tests.

Materials & Methods: 40 patients with PD with dementia, 45 age-matched controls were examined using EEG-recordings and standard neuropsychological investigations.

Results: We have found significant increase of slow-wave activity, decreased alpha rhythm and coherence in central and frontal regions in both hemispheres in PD group vs. controls, ($p < 0.05$), which become significantly stronger after tests on fatigue. We found significant positive dynamic in EEG changes on short and long-term treatment after tests on fatigue.

Conclusion: EEG changes before and after tests on fatigue, cognitive impairments have positive dynamic on short and long-term treatment of dementia in PD. The significant positive dynamic in EEG was visualized especially after standardizes tests on fatigue, which could be specific indicator of the dynamic and efficacy of the treatment.

Biography

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