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EVALUATION OF COGNITIVE DEFICITS IN PATIENTS WITH PARKIN (PARK2) GENE MUTATIONS USING AUDITORY EVENT-RELATED POTENTIALS

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Objective: Studies on cognitive deficits in patients with parkin (PARK2) gene mutation are rare and report more slight changes in terms of cognitive deficits compared with other Parkinson's disease (PD) patients, probably because of the early-onset and slower progress of the disease in this group. The aim of the present study is to investigate the cognition in patients with parkin mutation more in depth using cognitive electrophysiological measures.

Methods: The participants consisted of 25 healthy control volunteers, 65 non-demented PD patients. PD patients were divided into three groups as: PD patients with parkin mutation (PM-PD; n=15) and early onset (EO-PD; n=25) and late onset (LO-PD; n=25) idiopathic PD patients. Neuropsychological state of the subjects was evaluated by Mini-Mental State Examination (MMSE) and ERPs were recorded while the subjects performed an auditory oddball task.

Results: We found MMSE scores of the all PD groups were significantly lower than those of the control group ($p<0.001$). P300 amplitudes in target-ERPs of the oddball test were significantly lower in all PD groups compared with the controls ($p<0.001$). However, P200 amplitudes of all PD groups were significantly larger than those of the control group ($p=0.042$). In addition, the latencies of both P200 and P300 potentials were significantly longer in all PD patients ($p=0.015$ and $p<0.001$, respectively). There was no significant difference among the PD groups.

Conclusions: Our results suggest that EO-PD patients with PM-PD show a similar delay in cognitive processing and a similar decrease in selective attention performance as in other PD groups.

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