NEUROPSYCHOLOGICAL PROFILE OF PREMOTOR PHASE IN LRRK2 (R1441G AND G2019S) RELATED PARKINSON DISEASE

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Introduction: LRRK2 mutations are the most common known genetic causes of autosomal dominant Parkinson's disease (PD). The most frequent LRRK2 mutation, G2019S, has been observed throughout the world. The LRRK2-R1441G mutation is responsible for 46% of familial PD and for 2.5% of sporadic PD patients with Basque origin, with a penetrance of 80% at age 80 for R1441G mutation. This situation allows asymptomatic subject identification and prospective evaluation of neuropsychological and neuropsychiatric markers in the premotor stage of PD-LRRK2.

Aims: First, analyze neuropsychological and neuropsychiatric differences between PD-LRRK2 asymptomatic relatives that carried and not-carried the mutation, and second, determine correlation between age and neuropsychological and neuropsychiatric features.

Methods: 17 mutation carriers (12 R1441G mutation and 5 G2019S) and 17 non-mutation carriers were matched by sex, age and educational level. Neuropsychological assessment included general cognition, attention, executive function, memory, visuoperceptive and visuospatial function, and emotion recognition. Neuropsychiatric evaluation included depression, anxiety, personality characteristics and novelty sensation seeking.

Results: There wasn't any significant difference between mutation carriers and non-carriers in neuropsychological and neuropsychiatric evaluation. There is a higher correlation between age and neuropsychological variables in mutation carriers group, and older mutation carriers have significant lower performance than younger mutation carriers, comparing to non-carriers relatives.

Conclusions: Neuropsychological and neuropsychiatric classical test doesn't seem to be useful markers for discriminating a future risk to develop Parkinson. However, non-affected LRRK2 mutation carriers could have differential neuropsychological performance in relation to age, compared with the non-carriers group.