

Title: Estimating Personalized Risk of Mild Cognitive Impairment in Parkinson's disease with Comprehensive Risk Models

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In Parkinson's disease (PD), mild cognitive impairment (MCI) can reduce quality of life and its prevalence increases throughout the disease course, from 30% at the time of diagnosis(1), to 40-50% after 5 years(2,3) and up to 80% developing dementia 20 years post-diagnosis(4,5,6). Modifiable risk factors account for up to 45% of global dementia cases(7). Lifestyle interventions like physical exercise may increase quality of life and cognitive performance in PwP(8). It is imperative to identify PwP at risk for developing cognitive impairment at the earliest possible stage, to provide access to prevention measures, enable early disease management, and improve quality of life of PwP(8).

We will analyze data of the Luxembourg Parkinson's Study(10), including PwP and healthy controls with extensive neurological and neuropsychological assessments. We aim to apply and expand the "Preliminary Parkinson's disease Risk Estimator for Decline in Cognition Tool (pPREDICT)"(9), by including additional sociodemographic factors, indicators of cognitive reserve, non-motor symptoms, and other risk factors for PD associated with cognitive decline(12,13). Normative data for the neuropsychological test battery are derived from the healthy controls and the Movement Disorder Society Level I criteria for MCI will be applied to our study cohort(14). Subsequently, the model described in(9) will be applied, followed by an extended model incorporating the newly added variables. Statistical analyses are in progress, and results will be reported in the poster.

Our study will further validate the pPREDICT tool and may improve early detection of PwP at risk of developing cognitive impairment and improve their quality of life.

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