DETECTION OF PRODROMAL ALZHEIMER’S DISEASE AND ITS CONVERSION TO AD BASED ON INTRAINDIVIDUAL VARIABILITY IN COGNITIVE PERFORMANCE

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Introduction: Study results indicate an increased risk for mild cognitive impairment (MCI) patients to progress to Alzheimer’s disease (AD). Neuropsychological testing has demonstrated ability to detect cognitive impairment very early, with performance on tests of memory and executive functions being of predictive value for conversion to AD. However, there is emerging evidence that prediction of conversion increases when intraindividual information about cognitive performance (e.g. within subject across test variability, WSV) is considered.

Aims: The goal is to further characterize WSV risk profiles of healthy control subjects (HCS) and MCI for conversion to AD.

Methods: Preliminary data compromises neuropsychological test results acquired cross-sectionally from 26 HCS, 26 MCI and 26 AD patients. Subjects did not differ in age (M = 75.83, SD = 7.02) or years of education (M = 12.95, SD = 3.66). Each participant was administered various tests, from which four tests (verbal recall / letter fluency / figure copy / picture naming) were identified. Each person’s lowest z-transformed raw score was subtracted from the highest score, generating a WSV value, which is expressed in standard deviation (SD) units for each individual.

Results: Mean WSV is greater in AD (2.78, SD = 1.02) than in HCS (1.61, SD = 0.57), and mean WSV in MCI (2.25, SD = 0.75) is intermediate between WSV in AD and HCS.

Conclusions: Findings confirm the usefulness of intraindividual information for separation of HCS, MCI and AD. Longitudinal analyses may provide further information about the predictive validity of WSV analysis for conversion to AD.