

Abstract
Paper Sessions

Aging and Dementia

A - 02

A Novel Tool for the Differential Diagnosis of Clinical Alzheimer's Disease, Mild Cognitive Impairment, and Normal Cognition: Development and Validation

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Objective: To create a clinician-friendly diagnostic tool based on neuropsychological and demographic data to assist classification of Alzheimer's Disease (AD), Mild Cognitive Impairment (MCI), and normal cognition (NC).

Methods: Neuropsychological and demographic data from 652 (256 NC, 122 MCI, 274 AD) subjects were selected from a regional Alzheimer's Disease Research Center. Utilizing half the sample, two binary logistic regressions compared NC to (MCI + AD) and AD to (NC + MCI) groups. Initial models were reduced in a step-wise manner to determine significant predictors. Raw scores for these variables were multiplied by weights derived from the final regression models and combined to create weighted-sum scores. Cut-points between diagnoses were established using ROC curves based on weighted-sum scores. The tool was validated in the remaining subjects through ROC analyses and sensitivity/specificity calculations for each diagnosis. **Results:** Age, education, sex, Trails A&B, Logical Memory, Animals, and CVLT were all diagnostic predictors. ROC curves comparing weighted sum scores and consensus diagnoses in the validation set showed good discriminability (NC vs MCI + AD: AUC = .95; AD vs NC + MCI: AUC = .98). Scores of 305.75 predicted AD, MCI, and NC respectively, with good sensitivity/specificity in the validation sample (NC = .857/.913, MCI = .711/.883, AD = .914/.951), with 83% of all subjects correctly classified. **Conclusions:** We created a user-friendly diagnostic tool based on demographic and neuropsychological test scores which distinguished between AD, MCI, and NC in an initial validation sample with relatively good accuracy. Results merit replication in other samples, but suggest that this approach may be useful to aid clinical diagnosis, particularly when biomarker data are not available in clinical settings.