SESSION 125 (SYMPOSIUM)

NOVEL COGNITIVE AND FUNCTIONAL MARKERS FOR THE EARLIEST DETECTION OF PRODROMAL ALZHEIMER’S DISEASE

Chair: D. Loewenstein, University of Miami School of Medicine, Miami, Florida

There is increasing awareness that current measures of cognitive and functional performance may be insensitive to the early stages of Alzheimer’s disease (AD) in the MCI and PreMCI stages of the illness. To this end, we have developed sensitive new cognitive measures that are sensitive to the earliest manifestations of neurodegenerative disease and are currently employing them in NIH and State funded studies. We have also developed a computerized functional assessment battery by Dr. Sara Czaja and associates that provides performance-based measures such as use of an automatic teller machine (ATM), ability to fill a doctors, prescription at a pharmacy, the ability to comprehend and remember important elements of a physician’s visit as well as medication management. We will present data on semantic interference paradigms using the LASSI-L and investigate the relationship between measures of proactive and retroactive semantic interference and biomarkers such as medial temporal lobe atrophy on MRI and amyloid accumulation in the brain. We will then focus on a new culture-fair computer-based paired associate test that allows for controlled learning, assessment of maximum storage capacity and susceptibility to proactive and retroactive interference by binding and unbinding of semantic associations. Data will also be presented on a novel computerized functional assessment battery that is sensitive to decrements in functional abilities in early Alzheimer’s disease and which can be used to track longitudinal progression. Finally, we will explore newly revised measures of prospective memory and other novel paradigms that we believe may offer advantages over commonly employed neuropsychological measures.

NOVEL SEMANTIC INTERFERENCE PARADIGMS IN THE DETECTION OF MCI AND PREMCI

D. Loewenstein, Psychiatry, University of Miami School of Medicine, Miami, Florida

There are increasing efforts to identify the earliest forms of cognitive impairment in prodromal Alzheimer’s disease (AD). To this end, we have developed a sensitive test of vulnerability to proactive and retroactive semantic interference (LASSI-L). Among 30 non-demented community-dwelling elders, maximal storage capacity indices on the LASSI-L as well as measures of release from proactive interference were significantly associated with brain amyloid distribution. Significant associations were found on initial storage was found for regional areas in the precuneus, anterior cingulate and posterior cingulate (Spearman’s rho range -.52 to -.55). Significant associations were also found between release from proactive interference and amyloid accumulation in the precuneus, anterior cingulate and posterior cingulate (Spearman’s rho range -.45 to -.60) while these associations were much weaker for traditional neuropsychological measures. These findings indicate that specific subtests of the LASSI-L are particularly sensitive to amyloid distribution among independent community-dwelling elders at risk for AD.

A NEW COMPUTERIZED SEMANTIC PAIRED ASSOCIATE TEST IN THE DIAGNOSIS OF EARLY MCI AND ALZHEIMER’S

R.E. Curiel, Psychiatry & Behavioral Sciences, University of Miami School of Medicine, Miami, Florida

We describe the Miami Test of Semantic Interference and Learning (MITSI-L), a novel, paired association paradigm involving paired associates within three semantic categories (e.g., sheep-cow; apple-peach). Two learning trials are administered by computer twice to elicit maximum storage of the two-be-remembered material. Proactive semantic interference is assessed by having the subject unbind the initial word associations and subsequently pair the original target word with another semantically related word (e.g., sheep- horse; apple- peach). After the new associations are learned, participants are required to recall the old paired associates, which can result in retroactive interference. High test-retest properties of the MITSI-L will be described for cognitively normal elders and participants with MCI. In addition, data will be presented on the MITSI-L, other neuropsychological measures, MRI measurements and 18F-Florbetapir scans. Both total cortical and regional amyloid load for the precuneus, anterior cingulate, posterior cingulate, frontal, temporal and parietal lobes will be presented.

CURRENT TRENDS AND NEW DIRECTIONS IN THE PSYCHIATRIC ASSESSMENT OF MCI AND PREMCI STATES

E. Crocco, Psychiatry and Behavioral Sciences, University of Miami Miller Sch of Med, Bay Harbor, Florida

With the increased aging of the population, there is growing recognition that specific psychiatric manifestations such as anxiety, depression and other conditions may be early unrecognized features of prodromal Alzheimer’s disease (AD). Unfortunately, these symptoms may go unrecognized or ascribed to a primary psychiatric condition or mistaken for signs of other neuropsychiatric disorders. In this presentation, there will be an emphasis on state-of-the art diagnostic techniques to capture early cognitive and different psychiatric manifestations of prodromal AD in both the early Mild Cognitive Impairment (MCI) and Pre-MCI states. In addition to the discussing prognostic significance of these symptoms in different ethnic and cultural groups, there will be a focus on optimal detection and tailoring strategies for subjects who are at greatest risk for AD and related disorders as well as implications for longitudinal outcomes.

PERFORMANCE-BASED COMPUTERIZED FUNCTIONAL ASSESSMENT IN EARLY STAGE MCI

S. Sabbag, Psychiatry, University of Miami, Miami, Florida

There is increasing awareness that current measures of functional performance may be insensitive to the early stages of Alzheimer’s disease (AD) in the MCI and PreMCI stages of the illness. Current functional assessment batteries are reliant on patient or informant report that are subject to inaccuracies and bias. To this end, we have studied a sensitive battery of ecologically valid computerized functional assessment measures developed by Dr. Sara Czaja and associates. These performance-based measures such as use of an automatic teller machine (ATM), ability to fill a doctors, prescription at a pharmacy, the ability to comprehend and remember