NACC Project #2008-01

Changes in Cognitive performance in Preclinical AD: A Collaborative Analysis

Principal investigator
Brent Small, PhD Florida ADC

Collaborating centers
Mayo Clinic, Rush University, University of Michigan, Washington University, Albert Einstein COM, Longitudinal Research Inst.

Project description
Preclinical AD refers to a period of time prior to diagnosis where cognitive deficits are present among persons who will go on to be diagnosed with AD, relative to persons who will not be diagnosed with AD in the near future. Although the presence of cognitive deficits prior to the diagnosis of AD is well established, the nature of changes in cognitive performance during the preclinical period is under debate. Several studies have reported gradual declines in cognitive functioning in the years preceding diagnosis. By contrast, other studies have reported that individuals who will be clinically affected with AD exhibit differences in cognitive performance many years prior to diagnosis, but that these deficits are stable until shortly before diagnosis. The nature of change has implications for the ability to identify persons who are at risk of AD. If the decline in cognitive performance is gradual, then the performance of persons who will or will not be diagnosed with AD will separate many years prior to diagnosis. By contrast, if persons who will or will not be diagnosed with AD exhibit parallel trajectories of cognitive change up until just prior to diagnosis, then the window to identify persons at greatest risk is much more narrow.

In the current proposal, we will examine the nature of changes in cognitive performance during the preclinical period of AD by pooling longitudinal data on changes in cognitive performance between persons who will or will not be diagnosed with AD from the Mayo Clinic, Albert Einstein College of Medicine, University of Michigan, Rush University, and Washington University-St Louis. The sites participating in the current proposal will contribute data on 763 incident AD cases, as well as 2,915 healthy controls who have been followed for up to 25 years. By using advanced statistical analysis techniques, that employ structural equation modeling, as well as multiple data imputation, we will examine three specific aims: (1) Describe the nature of changes in cognitive performance preceding an AD diagnosis; (2) Identify factors that modify the nature of changes in preclinical AD; and (3) Identify the number of years prior to diagnosis at which precipitous declines in cognitive performance begin. This project will allow an unparalleled examination of the nature of cognitive change in preclinical AD.

Contact information
For further information regarding this study, please contact:

Brent Small, PhD
Univ of South Florida
4202 E Fowler Ave
Tampa FL 33620
phone: (813) 974-9746
http://www.byrdinstitute.org

Rev. 04/21/2008