



HOW YOU CAN HELP:

Pushing Toward Earlier Detection of Alzheimer's Disease through Clinical Trials

By Charles Bernick, MD, Associate Medical Director, Cleveland Clinic Lou Ruvo Center for Brain Health

When does Alzheimer's disease (AD) begin? Clinically we say it is when symptoms of memory loss reach a point where they impair one's daily function. Based on a number of lines of evidence, however, researchers now believe that by that point, most of the disease process has already occurred. It is estimated that we are currently spending most of our efforts treating the last 20% of the disease course, and that AD changes in the brain begin from 10 to 20 years before the diagnosis is usually made.

This delay in recognizing AD may not have made much difference in the past, when there were no or only symptomatic treatments available. However, with the recent development and testing of new therapies that have the potential to slow disease progression, beginning treatment early in the disease process becomes imperative. With this idea in mind, there has been a major initiative in the research field to discover ways to detect AD in its earliest stages.

The Cleveland Clinic Lou Ruvo Center for Brain Health (CCLRCBH) is part of that research effort. As a collaborator in the Alzheimer's Disease Neuroimaging Initiative (ADNI), a nationwide project funded by the National Institutes of Health (NIH), the CCLRCBH has been studying various neuroimaging techniques and biomarkers that may be able to track changes in the living brain as older people transition from normal cognitive aging, to mild cognitive impairment (or MCI, in which individuals have a memory deficit but generally function normally), to AD. Utilizing the latest brain imaging methods at CCLRCBH, researchers are investigating the role

of MRI scanning to precisely measure volumes of particular areas of the brain, as well as PET scanning, which can image brain cell metabolism.

An exciting new technique with PET scanning is amyloid imaging. Amyloid is a protein that occurs in increased amounts in AD brains and is thought by many to play a role in causing the disease. By injecting a marker that tags amyloid, PET scanning can now reveal the amount of amyloid in one's brain—even before any symptoms develop.

ADNI has also focused on biomarkers for AD. A biomarker is a test that can be run on blood, spinal fluid, or other tissue that may reveal a disease. Just this year, ADNI made a significant step forward in developing a test to help diagnose the beginning states of AD sooner and more accurately by measuring levels of two proteins—tau and amyloid—in spinal fluid.

The CCLRCBH was an original member of the ADNI trial, which began by studying 800 people who ranged from normal to AD. To extend this research, ADNI was awarded \$24 million this year by the NIH. These funds will allow more people to participate in this ground breaking research, which is specifically targeting individuals with very mild memory impairment.

The research team at CCLRCBH is preparing to enroll new participants in this project. For more information about this or other studies at the CCLRCBH, or to inquire about participation, please contact the CCLRCBH at (702) 483-6000.

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