

# Early imaging, diagnosis of Alzheimer's leads to changes in patient care, better outcomes

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Patients suffering from early symptoms of Alzheimer's disease who were diagnosed sooner than usual using a brain imaging test received Alzheimer-specific medications earlier than those who did not have the brain imaging results available to their doctors or themselves. These patients also had significantly better clinical outcomes during the subsequent years they were clinically monitored, UCLA researchers have found for the first time.

The Metabolic Cerebral Imaging in Incipient Dementia study is an ongoing national clinical trial sponsored by the Centers for Medicare and Medicaid Services (CMS). These interim data found that [patients](#) whose doctors gleaned information from a brain PET scan performed with the tracer FDG - which measures energy being used throughout regions of the brain—did better over two years than those whose doctors were randomized to not have access to the scan information.

"The patients whose doctors were made aware of the Alzheimer's Disease metabolic pattern in their brains received Alzheimer's therapies sooner, and did better than patients whose doctors did not have the benefit of that information," said study principal investigator Daniel Silverman, a UCLA professor of molecular and [medical pharmacology](#). "During the subsequent two years after their PET scans, these patients had superior executive function, better memory abilities and greater preservation of overall cognitive function, providing the first direct evidence that patients whose early Alzheimer's disease is revealed by FDG-PET will do better than patients with the same condition, but with

their [brain metabolism](#) pattern remaining unknown to their doctors and themselves."

The findings from the study are being presented Sept. 26, 2013 at the Medical Biotech Forum in China.

Medicare currently does not reimburse for PET scans for patients showing signs of persistent [cognitive decline](#), but who do not yet have dementia, Silverman said. By the time Medicare covers an FDG-PET scan - for which they reimburse about \$1,200 per patient - much damage, some of it irreversible, has already been done to the brain tissue.

Medicare currently is reexamining reimbursement policies for PET scans obtained in dementia cases, specifically with respect to amyloid imaging. A national coverage decision is expected Oct. 1, Silverman said. Prior to the findings of the study being presented, there was no rigorously controlled scientific evidence available that tested the long-term clinical benefit associated with obtaining a PET scan, or any other kind of neuroimaging, in the evaluation of cognitively declining patients.

This multi-center, prospective, randomized and blinded study demonstrates significant clinical benefit, which may also save health care dollars.

"Patients who don't have Alzheimer's disease may be prescribed drugs that won't help them, or even make them worse," Silverman said. "And each year of taking these medications costs hundreds of dollars more than the reimbursement for a PET scan would."

Additionally, an undiagnosed Alzheimer's patient will not get drugs that the study is showing will help them maintain their cognitive abilities when given earlier. This may lead to the need for nursing home care six

to nine months earlier than for those with the same Alzheimer brain pattern, but who are diagnosed and treated sooner as a result of the early availability of the PET scan information.

"With nursing home care costing an average of about \$7,000 a month, there is the potential for CMS and American taxpayers to save several billion dollars per year," Silverman said.

These interim results examined 63 patients who underwent FDG-PET and neuropsychological testing at baseline. The testing and collection of medication prescription data were repeated every six months for two years. The doctors in the arm of the study who were able to view the PET scan immediately treated their patients differently than the doctors in the other arm, who did not get scan results until the end of the two-year study. About 40 percent of the patients whose doctors were informed of the presence of the Alzheimer brain metabolism pattern were given drugs specifically indicated for [dementia](#) within the first six months of the study.

Of the patients whose brain PET scans showed the Alzheimer metabolism patterns randomized to a two year delay of release of their scan results, none were prescribed Alzheimer medications in the first six months, and only 12 percent were prescribed those medications by the end of the first year, Silverman said.

Medicare has approved enrollment of 710 volunteers at least 65 years old for the study. Silverman said these interim results are being reported because they had enrolled a sufficient number of subjects to allow for the first meaningful evaluation of the long-term impact of PET scans on early Alzheimer's patients.

"Patients exhibiting Alzheimer-like neurodegenerative changes in cerebral metabolism were over three times more likely to be prescribed

medications in the first year following PET when results of the scans were immediately released," according to the abstract being presented at the meeting. ""This, in turn, was associated with significantly better performance on neuropsychological tests of memory, executive function and general cognitive status over a two-year follow-up period. This study provides the first direct evidence for improved cognitive outcomes attributable to a neuroimaging test of any kind."

Provided by University of California, Los Angeles

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