



Friday, May 9, 2008

Georgia team works on early DETECTION of Alzheimer's

Health-Care Innovations Hero

Atlanta Business Chronicle - by [Giannina Smith](#) Staff Writer

As the baby boomer generation continues to age, the number of patients suffering from Alzheimer's disease is expected to rise dramatically in decades to come.

According to the Alzheimer's Association, by 2010 there will be an estimated 500,000 new cases of Alzheimer's each year and nearly 1 million new cases annually by 2050, but a new device developed by **Emory University** and **Georgia Tech** researchers is working to shed light on the disease's early detection.

The new device, called DETECT, involves a brief and inexpensive test designed to detect mild cognitive impairment (MCI), which often leads to Alzheimer's disease.

It was developed by Michelle LaPlaca, associate professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University, and Dr. David Wright, assistant professor of emergency medicine at **Emory School of Medicine** and co-director of the **Emory Emergency Medicine Research Center**.

"The need to be able to identify people with mild cognitive impairment in the earliest stage possible is here now and it will become more and more in the future," said Larry McIntire, the chair of the Coulter Department of Biomedical Engineering at Georgia Tech and Emory. "As the population in the United States ages, we will have more and more people who will like to make sure and check to see if they do or do not have some type of MCI."

Originally developed to detect MCI in athletes who may have suffered a concussion, DETECT allows doctors to track the cognitive decline associated with the early stages of Alzheimer's disease, aiding in the early identification of people susceptible to Alzheimer's and giving sufferers a chance to slow the disease's progression before serious symptoms occur.

"Most people are not tested for Alzheimer's disease unless they have symptoms, but by then it is, I wouldn't say too late, but later than you would ideally want," LaPlaca said. "If you get them on board earlier when they are showing an abnormal decline of cognitive impairment you can extend the time before they get full-onset Alzheimer's."

Current pen-and-paper assessment tests used to detect early signs of Alzheimer's disease can be costly and last about an hour and a half. Administered by a trained technician in a controlled environment, these tests are rarely used as a regular screening tool and are usually given only after signs of Alzheimer's disease, such as forgetfulness or unsafe behavior, occur.

"These test are normally very long," LaPlaca said. "What we wanted to do is take them and shorten them so they can be presented in a simple format and be delivered rapidly."

DETECT runs patients through a 10-minute battery of visual and auditory stimuli, including pictures and words that assess cognitive abilities, such as reaction time and memory capabilities, in relation to the patient's age.

"It's a portable, rapid screening for mild cognitive impairment that can be used in a clinic setting where nothing has been developed before," Wright said. "You can put it on the patient while they are waiting on the doctor, you

get a test result and you're done. We see it as an EKG that you do at your annual physical when you get to a certain age."

LaPlaca and Wright said they foresee the test becoming a regular exam patients receive from general practitioners as part of normal preventive care. If cognitive abilities begin to decline over time, a patient would then be referred to a specialist, such as a neurologist or neuropsychologist, to undergo additional testing.

"The big advantage of this is it could be part of the routine care," LaPlaca said. "We envision it as being very attractive to general practitioners. To be in every doctor's office where you are going to get a physical age 60 and up. It becomes like a mammogram or colonoscopy."

In a preliminary 400-person clinical study at Emory's Wesley Woods Center, the 10-minute test has shown to have similar accuracy to the 90-minute pen-and-paper test.

Expected to be commercialized later this year, Wright said he hopes to have some devices in doctor's offices as early as the summer.

"We have ordered 30 of the devices and we plan to put them in physicians' offices this summer if we can get it out quick enough," Wright said. "The purpose of this is to see how it fits in their flow and to work out little details about how they can bill for it."

Aside from the convenience and low cost associated with the device, Wright said the most significant benefit is the information DETECT provides patients and their families.

"To me the most important thing is that the individual and the family are informed about the condition so they can do some preventative measures, such as making sure mother is checked on at night and that you leave her medicine out or check to make sure the stove isn't left on," Wright said. "The second reason is there are a number of drugs on the market and, although I will say they don't cure the disease or treat the disease, they delay symptom onset and if you have a family member who has Alzheimer's disease, having them be independent just two months longer is dramatic."