Eyes could offer Alzheimer's breakthrough
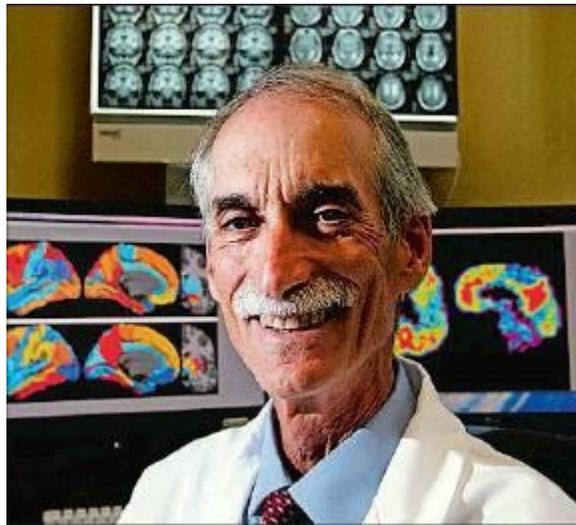
Brown team tests use of retinal imaging, drug therapy to detect, halt disease

By G. Wayne Miller Journal Staff Writer

Dr. Stephen Salloway, an Alzheimer's expert affiliated with Brown University and Butler Hospital, says "the eyes are windows to the brain." [THE PROVIDENCE JOURNAL, FILE / KRIS CRAIG]

PROVIDENCE — In a potential landmark development in the early detection and prevention of Alzheimer's disease, a Brown University research team on Monday tested the first person enrolled in a study of whether a drug being developed for prevention of the fatal disease can lower deposits in the eye of the same plaque that forms in the brains of Alzheimer's patients.

Using a technique known as retinal imaging, investigators tested the female subject, who asked not to be identified, Monday afternoon at Butler Hospital.

If the technique proves successful — demonstrating that amyloid plaque deposits in the eye correspond with the same disease-causing buildups in the brain — the costs and complexity of diagnosis would be significantly lowered.

Researchers hope the drug, solanezumab, will show promise as a preventive agent.

"This study offers the potential of two game-changing results in the fight to prevent Alzheimer's," Butler Hospital said. "In addition to solanezumab offering the hope of preventing Alzheimer's progression in people who are at risk, the retinal imaging has the potential to be a safe and cost-effective method for detecting and tracking AD risk and progression."

Current detection procedures involve costly and time-consuming amyloid PET scans, not currently covered by most insurance plans. Retinal imaging can be accomplished with technology that ophthalmologists routinely use in their practices.

"I hold high hopes for this study, as it is exploring a possible prevention drug while at the same time potentially demonstrating that the eyes are windows to the brain," said Dr. Stephen Salloway, head of Butler's Memory and Aging Program and professor of neurology and psychiatry at the Warren Alpert Medical School of Brown University.

"We are excited to be the first program to enlist participation in this study, which is yet another weapon in the war against Alzheimer's."

Participants in the new retinal-imaging research — a double-blind study — will be followed for three years.

The research builds on the work of Dr. Peter Snyder, professor of Neurology at the Alpert Medical School, who "is pioneering this technique to detect Alzheimer's disease risk in individuals who are cognitively normal, but have a family history" of the disease, according to Butler.

"Between our two research groups, we hope that this important work will help us to identify the best retinal imaging techniques to detect and monitor the progression of Alzheimer's," Snyder said.

Retinal imaging involves "high resolution optical coherence tomography," which Butler describes as "a safe, non-invasive technique that examines the deepest levels of the retina in terms of structure, amyloid deposits and blood flow." Retinal results will be compared with those of PET scans to establish if the plaque correspondence is valid.

With today's technology, plaque deposits can be detected before an individual shows symptoms of Alzheimer's. Preventing or reversing their formation can stop cognitive decline.

In other research emerging from Salloway's center, the success of the drug aducanumab in reducing plaque was demonstrated in clinical trials at Butler and elsewhere. The ground-breaking research made the cover of Nature, the world's most frequently cited scientific publication, last year.

The toll of Alzheimer's continues to mount.

"Barring the development of a medical breakthrough, the number of Americans age 65 and older with Alzheimer's is expected to nearly triple by 2050, from 5.5 million to a projected 16 million," the Alzheimer's Association reported this month. "Today, someone in the United States develops Alzheimer's every 66 seconds; by 2050, this will hasten to every 33 seconds."

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