

New study finds healthy children of Alzheimer patients show early brain changes

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Medical College of Wisconsin researchers in Milwaukee have reported that children of Alzheimer's patients who are carriers of a genetic risk factor for Alzheimer's disease have neurological changes that are detectable long before clinical symptoms may appear.

Functional MRI brain imaging revealed that these symptomless carriers of the APOE-4 gene demonstrated significantly reduced functional brain connectivity between the hippocampus and the posterior cingulate cortex, two important brain structures for memory processing. These structures are relevant for information acquisition, filtering and sorting.

The study, conducted at Froedtert Hospital, was led by Shi Jiang Li, Ph.D., professor of biophysics, and was presented at the Alzheimer's Association International Conference on Alzheimer's disease in Chicago, July 29th.

"Just as if cancer could be detected when there were only a few cells, decades before it was evident, the advantage of identifying those at great risk for having Alzheimer's would be of tremendous value in development of interventional therapies," says Dr. Li.

The researchers studied 28 neurologically-normal subjects, between ages 45 and 65. Twelve carried the APOE-4 gene and 16 did not. The two groups showed no significant difference in age, educational level, or neuropsychological performances. All subjects received fMRI scans. For each subject, functional connectivity between the two brain structures

was measured in a resting state.

Results showed that functional connectivity in the non APOE-4 carriers was approximately 65 percent better than that of the carriers.

Source: Medical College of Wisconsin

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