

# Thyrotropin levels associated with Alzheimer's disease risk in women

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Women with low or high levels of the hormone thyrotropin, which affects thyroid gland function and thyroid hormone levels, appear to have a higher risk of developing Alzheimer's disease, according to a report in the July 28 issue of *Archives of Internal Medicine*.

A clinically detectable over- or under-active thyroid has long been recognized as a potentially reversible cause of cognitive (thinking, learning and memory) impairment, according to background information in the article. Previous studies have examined whether levels of thyrotropin, a hormone that is secreted by the pituitary gland and helps regulate thyroid gland function, is associated with cognitive performance in individuals with normal thyroid function. However, results have been inconsistent.

Zaldy S. Tan, M.D., M.P.H., of Hebrew SeniorLife, Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, and colleagues measured thyrotropin levels in 1,864 individuals (average age 71) without cognitive problems between 1977 and 1979.

Participants—part of the community-based Framingham Study—were assessed for dementia at that time and again every two years.

Over an average of 12.7 years of follow-up, 209 participants developed Alzheimer's disease. After adjusting for other related factors, the researchers found that women with the lowest (less than 1 milli-international unit per liter) and highest (more than 2.1 milli-international units per liter) levels of thyrotropin had more than double the risk of

developing Alzheimer's disease. However, no relationship was observed between thyrotropin levels and Alzheimer's disease risk in men.

"Whether altered thyrotropin levels occur before or after the onset of Alzheimer's disease, the neuropathologic mechanism is unclear," the authors write. Changes in the brain caused by Alzheimer's disease may cause a reduction in the amount of thyrotropin released or changes in the body's responsiveness to the hormone. Alternatively, low or high thyrotropin levels could damage neurons or blood vessels, leading to cognitive difficulties.

Source: JAMA and Archives Journals

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