

Clinical Update

Long Term Beta Carotene Use Protects Against Dementia

A beneficial effect was found after at least 15 years, study says

(Archives of Internal Medicine, November 2007)

Taking supplements of the antioxidant beta carotene for a long time -- 15 years or more -- appears to lessen the decline in thinking ability that comes with Alzheimer's disease, a study finds.

"My hypothesis is that it's how long you take it," said study lead author Francine Grodstein, an associate professor of medicine at Harvard Medical School and a researcher at Brigham and Women's Hospital in Boston.

The idea that antioxidants such as beta carotene can help protect against Alzheimer's disease is not new. But the idea remains controversial, because a number of studies have not produced positive results. This latest trial, which started as the Physicians Health Study II, stretches back to 1982.

That year, 4,052 men were assigned to take daily doses of either 50 milligrams of beta carotene -- the amount in about five large carrots -- or a placebo every other day. An additional 1,904 men were randomly assigned to one of the two groups between 1998 and 2001.

All the men filled out yearly questionnaires about their health and compliance with the regimen, and all had telephone assessments of their thinking ability at least once between 1998 and 2002. A difference emerged between long-term and short-term participants. The men who had stayed in the trial for an average of 18 years scored significantly higher on most of the tests of cognitive ability. "Their memory was equivalent to that of men about a year younger," Grodstein said.

What works for men almost certainly should work for women, she said, and the idea that long-term use of an intervention is important should be applied to other preventive measures against Alzheimer's disease.

"Our research supports the possibility of successful interventions at early stages of brain aging in healthy adults," Grodstein said. But beta carotene is not entirely risk-free, she noted. "In studies of male smokers, beta carotene supplements increase the lung cancer mortality rate," Grodstein said. The findings are published in the Nov. 12 issue of *Archives of Internal Medicine*.

An accompanying editorial in the journal by Dr. Kristine Yaffe, professor of psychiatry, neurology, epidemiology and biostatistics at the University of California, San Francisco, circled warily around the concept of long-term antioxidant supplements. One possibility, Yaffe said, is that someone who remembers to take a supplement for 18 years is in better mental shape to begin with than someone who doesn't. (Grodstein said that compliance had been checked as carefully for the men taking the placebo.)

The idea that long-term use of the supplements is necessary "is certainly plausible, given that the neuropathologic changes underlying clinically significant impairment appear to take years, if not decades," Yaffe wrote. But evidence for that concept would be difficult to obtain, since it would require trials lasting 25 to 30 years, she said.

"For the clinician, there is no convincing justification to recommend the use of antioxidant dietary supplements to maintain cognitive performance in cognitively normal adults or those with mild cognitive impairment," Yaffe concluded.