Friday Favorites: Can Vitamin and Mineral Supplements Prevent Alzheimer's? Transcript

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Oxidative Stress and Vitamin E Rationale

"Can Vitamin E or Selenium Supplements Prevent or Treat Alzheimer's?" Oxidative stress from free radicals is the one of the pathways implicated in the development and deterioration of Alzheimer's brains, given the evidence of excess oxidative DNA damage on autopsy.

So, what about trying an antioxidant? Vitamin E levels tend to be lower in the bloodstreams of those with cognitive impairment or dementia, but which came first?

Maybe Alzheimer's disease led to poor eating, rather than poor eating leading to Alzheimer's disease. Greater vitamin E intake from foods is clearly associated with a lower risk of developing Alzheimer's, but greater vitamin E intake from supplements is not.

But, that didn't stop researchers from including a vitamin E arm in the largest primary prevention study of Alzheimer's disease to date. The Prevention of Alzheimer's Disease by Vitamin E and Selenium trial randomized more than 7500 older men to take vitamin E, selenium, both, or neither-just placebos- for five years.

To quote from the conclusion: "Neither supplement prevented dementia.

Prevention Trials of Vitamin E and Selenium

" A separate long-term vitamin E supplementation trial of older women similarly found no protection against cognitive decline. Neither did vitamin E appear to benefit those with mild cognitive impairment, but the trials on Alzheimer's patients themselves started to get more interesting.

The first trial, published in the New England Journal of Medicine, randomized more than 150 Alzheimer's patients to vitamin E or placebo to see if vitamin E could slow the progression of the disease.

The primary outcome was the number of days until of one of any of the following happened: death, institutionalization, loss of the ability to perform basic activities of daily living, or sliding into severe dementia, where you suffer a complete loss of sense of time or place.

On first analysis, vitamin E flopped: no significant slowing of progression. Digging deeper, the researchers realized that despite the random allotment, the placebo group just by chance ended up with patients with milder disease.

After taking that into account, the difference in outcomes between the vitamin E and placebo groups widened substantially. Now, this kind of unplanned post-hoc analysis is heavily frowned upon, but the effect seemed so sizable they went ahead and published it.

Vitamin E in Mild Cognitive Impairment

In the placebo group, the adjusted time to death or loss of independence was 440 days, but in the vitamin E group, after the baseline cognition was normalized, it was 670 days, more than seven months later.

However, given the unorthodox analysis, the scientific world waited for the study to be replicated. And here we go: more than 600 patients with mild to moderate Alzheimer's disease were subsequently randomized to vitamin E supplements, the drug memantine, both, or neither (just placebos) for two years.

Although there was no slowing of cognitive decline after adjusting for multiple comparisons, there was a slowing of

functional decline, in terms of managing daily activities like bathing or dressing.

The vitamin E group appeared to only suffer about 1.

Early Alzheimeru2019s Trial and Post-Hoc Findings

5 years of functional deterioration in the two years' time, resulting in approximately two hours less caregiver time required each day compared to the drug group.

If those were the only two clinical vitamin E trials, I would give vitamin E serious consideration for those with Alzheimer's disease. But, there's a third, a six-month trial, that suggested vitamin E may be detrimental to cognition in some Alzheimer's patients.

Obviously, more research needs to be done. In my next video, I'll cover other antioxidants that have been put to the test, including vitamin C, beta carotene, Centrum multivitamin, and the minerals zinc and calcium.