Abstract: Calcium and Vitamin D Supplementation and Cognitive Impairment in the Women’s Health Initiative

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Background: Calcium and vitamin D are thought to play important roles in neuronal functioning. Studies have found associations between low serum vitamin D levels and reduced cognitive functioning, as well as high serum calcium levels and reduced cognitive functioning.

Objective: To examine the effects of vitamin D and calcium on cognitive outcomes in elderly women.

Design: Post-hoc analysis of a randomized double-blinded placebo-controlled trial.

Setting: 40 Women’s Health Initiative clinical centers across the U.S.

Participants: 4143 women aged 65 years and older without probable dementia at baseline who participated in the WHI Calcium and Vitamin D trial and the Women’s Health Initiative Memory Study.

Interventions: 2034 women were randomized to 1000 mg of calcium carbonate combined with 400 IU of vitamin D3; 2109 women were randomized to placebo

Measurements: Primary: classifications of probable dementia or mild cognitive impairment via a 4-phase protocol that included central adjudication. Secondary: global cognitive function and individual cognitive subtests.

Results: Mean age of participants was 71 years. During mean follow-up of 7.8 years, there were 39 cases of incident dementia among calcium plus vitamin D subjects compared to 37 cases among placebo subjects (hazard ratio=1.11, 95%CI: 0.71-1.74, p=0.64). Likewise, there were 98 cases of incident mild cognitive impairment among calcium plus vitamin D subjects compared to 108 cases among placebo subjects (hazard ratio=0.95, 95%CI: 0.72-1.25, p=0.72). There were no significant differences in incident dementia or mild cognitive impairment, or in global or domain-specific cognitive function between groups.

Conclusions: There was no association between treatment assignment and incident cognitive impairment. Further studies are needed to investigate the effects of vitamin D and calcium separately, on men and in other age and ethnic groups, and with other doses.
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