

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

Vitamin and Mineral Supplements for the Primary Prevention of Cardiovascular Disease and Cancer

استاد راهنما:

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Importance:

- ▶ Cardiovascular disease and cancer are the 2 leading causes of death in the US, and vitamin and mineral supplementation has been proposed to help prevent these conditions.

Study Selection

- ▶ English-language randomized clinical trials (RCTs) of vitamin or mineral use among adults without cardiovascular disease or cancer and with no known vitamin or mineral deficiencies; observational cohort studies examining serious harms.

Beta Carotene and Vitamin A

- ▶ Pooled estimates showed statistically significant paradoxical harm associated with beta carotene use. The most pronounced risk increase was for lung cancer, with the pooled estimate showing a statistically significantly increased risk over 3.7 to 12 years of follow-up (OR, 1.20 [95% CI, 1.01-1.42])
- ▶ Cardiovascular disease mortality similarly showed an increased risk (OR, 1.10 [95% CI, 1.02-1.19])

Vitamin E

- ▶ Evidence indicated that vitamin E had no benefit for mortality, cardiovascular disease, or cancer. Pooled evidence demonstrated no statistically significant association between vitamin E use and cardiovascular disease or incidence of any cancer.
- ▶ In a cohort study, 0.5% among those taking vitamin E and 0.3% among those taking placebo experienced a hemorrhagic stroke (HR, 1.74 [95% CI, 1.04-2.90]).

Vitamin D With or Without Calcium

- ▶ Pooling studies of vitamin D with or without calcium cosupplementation showed no significant reduction in cardiovascular disease or cancer outcomes.
- ▶ One of the cohort studies showed that 2.5% of participants who were taking 400 IU of vitamin D and 1000 mg of calcium daily developed kidney stones after 7 years, compared with 2.1% in the placebo group (HR, 1.17 [95% CI, 1.02-1.34])

Multivitamin Supplementation

- ▶ The evidence suggested small to no benefit of multivitamin use for all-cause mortality, no benefit for cardiovascular disease, and a possible small benefit for cancer outcomes.
- ▶ With regard to specific adverse effects, studies found an increased risk of rash (29.0% among multivitamin users, 27.3% among nonusers; OR, 1.06 [95% CI, 1.01-1.12]) and nosebleeds (21.6% among multivitamin users, 19.8% among nonusers; OR, 1.09 [95% CI, 1.02-1.16]).

Limitations

- ▶ There may be other benefits of some supplements that were not covered in this review
- ▶ Because of the focus on studies in predominantly healthy populations without known nutritional deficiencies, this review also did not cover therapeutic use of supplements
- ▶ There may be other doses, formulations, or supplement combinations that could be beneficial or less harmful for which the review did not have the data to explore

conclusion

- ▶ The findings from 84 RCTs and 6 cohort studies suggest that most vitamin and mineral supplements provide no clinically important protective effects for cardiovascular disease, cancer, or all-cause mortality in healthy adults without known nutritional deficiencies. One exception was a slightly lower risk of cancer incidence with multivitamin use.
- ▶ Beta carotene was associated with an increased risk of lung cancer and other harmful outcomes in persons at high risk of lung cancer.

Thanks for your attention