

Date of release: 04 May, 2009

Multivitamins to prevent cancer and cardiovascular disease

Cancer and cardiovascular disease are frequent health-care problems and the most frequent cause of death. Shortages of antioxidant vitamins (vitamins A, C and E, beta-carotene and folic acid) have been shown to be associated with the blood vessel changes that occur in cardiovascular disease. Other information suggests that vitamins might lower a person's chances of developing cancer. Although recent recommendations and guidelines do not encourage routine multivitamin/mineral supplementation [1-4], many people believe that taking multivitamins might reduce their chances of developing cardiovascular disease or cancer.

A recent paper from the Women's Health Initiative (WHI) clinical trials has examined associations between multivitamin use and risk of cancer, cardiovascular disease and mortality in postmenopausal women [5]. The study included 161,808 participants from the WHI clinical trials ($n = 68,132$ in three overlapping trials of hormone therapy, dietary modification, and calcium and vitamin D supplements) or an observational study ($n = 93,676$). The median follow-ups were 8.0 years in the clinical study and 7.9 years in the observational study. A total of 41.5% of the participants used multivitamins. The following events have been documented: cancers of the breast (invasive), colon/rectum, endometrium, kidney, bladder, stomach, ovary and lung; cardiovascular disease (myocardial infarction, stroke and venous thromboembolism); and total mortality. Multivariate-adjusted analyses revealed no association of multivitamin use with risk of any cancer, with myocardial infarction (hazard ratio (HR) 0.96; 95% confidence interval (CI) 0.89–1.03), with stroke (HR 0.99; 95% CI 0.91–1.07) or with mortality (HR 1.02; 95% CI 0.97–1.07).

Comment

Neuhouser and colleagues [5] conclude that, after median follow-ups of 8.0 and 7.9 years in the clinical trial and observational study cohorts, respectively, the WHI study provided convincing evidence that multivitamin use has little or no influence on the risk of common cancers, cardiovascular disease, or total mortality in postmenopausal women. Older studies for multivitamins and mineral supplements vary in quality and have shown conflicting results.

But the utility of a directed and individualized vitamin/mineral supplementation – where needed – cannot be dismissed by these negative results of the WHI trials. Some vitamins or mineral supplements are clearly indicated for specific age groups and conditions, such as folic acid for women in their child-bearing age, without known harmful side-effects [7]. Furthermore, it is known that there is a high prevalence of vitamin D deficiency. There are strong data suggesting that vitamin D has expanding roles in addition to its importance in decreasing fracture risk [6]. Vitamin D supplements are therefore recommended for elderly patients. However, the data on vitamin D supplementation and cardiovascular events are conflicting. Other vitamins are dangerous if used without a clear indication, for example long-term intake of a diet high in retinol may promote the development of osteoporotic hip fractures in women [8].

Therefore, the statement of Fletcher and Fairfield from 2002 is still valid today [9]: 'Physicians should make specific efforts to learn about their patients' use of vitamins to ensure that they are taking vitamins they should, such as folate supplementation for women in

the child-bearing years, and avoiding dangerous practices such as high doses of vitamin A during pregnancy or massive doses of fat-soluble vitamins at any age’.

In conclusion, it has to be emphasized that the individualized use of some vitamins and minerals may be indicated, but that there are no data allowing us to recommend the general use of multivitamins. Furthermore, the amounts of vitamins and minerals in fortified foods and vitamin supplements have to be reassessed.

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