PIC Question of the Week: 05/09/05

Q: What are the risks and benefits of using vitamin E for the prevention of cardiovascular disease and cancer?

A: Atherosclerosis involves oxidation of low-density cholesterol (LDL) that results in damage to smooth muscle cells and extension of plaque. This may increase the risk of stroke, heart attack, and other cardiovascular events. In addition, free radicals produced by many carcinogens can damage DNA resulting in tumor development and progression. The antioxidant effect of vitamin E has long been thought to prevent cardiovascular disease and cancer. A meta-analysis in the Lancet reviewed seven clinical trials of vitamin E and concluded that using the vitamin itself or in combination with other antioxidants had little effect on all-cause or cardiovascular mortality relative to placebo. Similarly, there was no difference in the incidence of cerebrovascular accidents when compared to placebo-treated patients. Another meta-analysis of nineteen clinical trials involving over 136,000 patients revealed an increased risk for all-cause mortality in those taking >150 IU/day of vitamin E compared to those receiving placebo. The study concluded that "high-doses" (≥ 400 IU/day) of vitamin E should be avoided. Lastly, the Heart Outcomes Prevention Evaluation (HOPE) trial and its extension, The Ongoing Outcomes (HOPE-TOO), evaluated the effects of vitamin E supplementation in nearly 10,000 high risk cardiovascular patients. Eligible participants were at least 55-years old and had a history of coronary or peripheral arterial disease, stroke, or diabetes mellitus and did not have known heart failure. Each of the enrolled subjects received either 400 IU/day of vitamin E or placebo. The nearly ten-year study concluded that patients with vascular disease or diabetes had no decrease in the frequency of cancer or major cardiovascular events and actually experienced an increased risk of heart failure. In summary, vitamin E does not appear to reduce the risk of heart attack, stroke, or cancer. Doses ≥ 400 IU/day may actually increase the risk of heart failure.

References:

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