Low vitamin D levels associated with death from cardiovascular, all causes

June 23 2008

Individuals with lower blood levels of vitamin D appear to have an increased risk of death overall and from cardiovascular causes, according to a report in the June 23 issue of *Archives of Internal Medicine*, one of the JAMA/Archives journals.

A recent consensus panel estimated that about 50 percent to 60 percent of older individuals in North America and the rest of the world do not have satisfactory vitamin D status, and the situation is similar for younger individuals, according to background information in the article. Blood levels of 25-hydroxyvitamin D, a measure of blood vitamin D levels, lower than 20 to 30 nanograms per milliliter have been associated with falls, fractures, cancer, immune dysfunction, cardiovascular disease and hypertension. These effects are thought to be mediated by the compound 1,25-dihydroxyvitamin D, which is produced by the body and also converted from 25-hydroxyvitamin D.

Harald Dobnig, M.D., of Medical University of Graz, Austria, and colleagues studied 25-hydroxyvitamin D and 1,25-dihydroxyvitamin D levels in 3,258 consecutive patients (average age 62 years) who were scheduled for coronary angiography testing at a single medical center between 1997 and 2000.

During about 7.7 years of follow-up, 737 (22.6 percent) of participants died, including 463 (62.8 percent) who died of cardiovascular causes. Death rates from any cause and from cardiovascular causes were higher among individuals in the lower one-half of 25-hydroxyvitamin D levels

and the lowest one-fourth of 1,25-dihydroxyvitamin D levels. These associations remained when the researchers accounted for other factors, including coronary artery disease, physical activity level and co-occurring diseases.

Low 25-hydroxyvitamin D levels also were correlated with markers of inflammation such as C-reactive protein, as well as signs of oxidative (oxygen-related) damage to cells, the authors note.

"Apart from the proved effects that vitamin D has on bone metabolism and neuromuscular function, appropriate serum levels (that may also be higher than in the present investigation) are associated with a decrease in mortality," they conclude. "Although not proved, it seems possible that at least part of this effect may be due to lowering of a risk profile promoting atherosclerosis [narrowing of the arteries] and preventing cardiovascular end points."

Source: JAMA and Archives Journals