More severe heart disease found in patients with vitamin D deficiency

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Vitamin D deficiency is an independent risk factor for heart disease with lower levels of vitamin D being associated with a higher presence and severity of coronary artery disease, according to research to be presented at the American College of Cardiology's 63rd Annual Scientific Session.

A growing body of research shows that vitamin D may be beneficial in preventing heart disease. Several recent studies also support the idea that low levels of vitamin D are linked to an increased risk of heart disease; however, it is still not clear whether adding vitamin D supplements may help reduce that risk.

In the largest study of its kind to evaluate the relationship between vitamin D levels and coronary artery disease, vitamin D deficiency (20ng/mL) was observed in 70.4 percent of patients undergoing coronary angiography – an imaging test used to see how blood flows through the arteries in the heart. Vitamin D deficiency was associated with higher prevalence of coronary artery disease, with a 32 percent higher occurrence in patients with the lowest vitamin D levels and a near 20 percent higher frequency of severe disease affecting multiple vessels. A progressive increase in heart disease was found according to the severity of vitamin D deficiency. Patients with values lower than 10 mg/dl had a near two-fold increased rate of coronary atherosclerosis as compared with those showing normal levels.

Researchers evaluated vitamin D levels in 1,484 patients. Vitamin D deficiency was defined as levels lower than 20ng/mL, and severe vitamin

D deficiency was defined as levels under 10ng/mL. Patients were considered to have coronary artery disease if they had a diameter reduction of greater than 50 percent in at least one coronary artery. The extent and severity of heart disease were measured by quantitative coronary angiography – a procedure that determines the degree of blockage in arteries.

"Present results suggest vitamin D deficiency to be the cause rather than the consequence of atherosclerosis," said Monica Verdoia, M.D., specializing cardiologist at the Department of Cardiology, Ospedale Maggiore della Carità, Eastern Piedmont University in Novara, Italy, and investigator on the study on behalf of the Novara Atherosclerosis study group by Prof. Giuseppe De Luca. "Although evidence of benefits with vitamin D supplementation in cardiovascular outcomes are still lacking, strategies to raise endogenous vitamin D should probably be advised in the prevention of cardiovascular disease."

A diet rich in vitamin D and moderate exercise outdoors should be advised in both patients with and without cardiovascular disease, Verdoia said. Vitamin D acts as a regulator on the function of the immune system as well as inflammatory processes that contribute to risk factors for heart disease, she said.

Verdoia said the importance of the study is to provide deeper insight into stratification tools for assessing the risk of coronary artery disease in a real world population, where vitamin D deficiency has a dramatic prevalence. She stresses the need to make funding a priority in the research on vitamin D in cardiovascular prevention. The research team plans to proceed with clinical trials evaluating the treatment of vitamin D deficiency and to investigate the mechanisms by which vitamin D can influence the development of atherosclerosis.

Researchers estimate that more than half of U.S. adults are vitamin D

deficient, with the highest rates among African Americans and Hispanics. Vitamin D is being studied for its possible connection to several diseases and health problems, including diabetes, high blood pressure, multiple sclerosis, autoimmune conditions, bone disorders and some types of cancer.

A limitation of the study is that researchers did not evaluate the long-term outcomes for study patients, so it is unknown whether those with lower vitamin D levels experienced a higher rate of recurrent events or a quicker progression of the coronary disease, although other studies have suggested this is the case.

Provided by American College of Cardiology

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