Medical Xpress

Vitamin D may help reduce heart risk in African-Americans

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In recent years supplementation with Vitamin D has been shown to reduce the risk of cardiovascular disease (CVD) in people who are deficient in the vitamin. Now new research from the Georgia Prevention Institute at Georgia Health Sciences University in Augusta indicates that supplementation with the "sunshine vitamin" may be particularly beneficial for overweight African-American adults, a population at increased risk for both CVD and Vitamin D deficiency.

According to Ryan A. Harris, PhD, assistant professor, the Georgia team's research suggests that Vitamin D supplementation cut the cardiovascular risk by improving the health and function of vascular endothelial cells, cells that line the inside of blood vessels. He will discuss the team's findings at the Experimental Biology 2011 meeting (EB 2011), being held April 9-13, 2011 at the Walter E. Washington Convention Center in Washington, DC. The presentation is entitled "Vitamin D Improves Flow-Mediated Dilation in African American Adults."

A Population at Risk

African-Americans as a group have multiple risk factors for CVD. They are more likely than people of other races to develop type 2 diabetes, a known contributor to CVD, and when they develop high blood pressure it tends to be more severe than that of other groups. African-Americans also have a greater risk of developing Vitamin D deficiency: The pigmentation in their skin inhibits their skin cells' ability to produce

Vitamin D in response to exposure to sunlight.

The Study

In the study, 45 overweight African-American adults who were separated into two groups. (Overweight participants were chosen because carrying extra weight has been linked to inflammation in blood vessels, another risk for CVD.) One group, the treatment group, received 60,000 IU of Vitamin D in a single dose every 4 weeks for 16 weeks. The second group, the placebo group, received dummy pills. Although 60,000 IU seems like a high dose, Vitamin D has a half life of approximately 3 weeks, which means that half the dose is still in the body 3 weeks after it is taken. Given the time it takes the body to clear Vitamin D, a dose of 60,000 IU equals about 2,000 IU a day.

"We could have used daily dosing, but we knew compliance would be better with monthly dosing. One dose a month is easier than taking two pills a day," says Dr. Harris. He notes that participants reported no side effects.

At the beginning of the study, the researchers used an inflatable cuff to increase blood flow in the brachial arteries of the participants' arms, then used ultrasound to measure the arteries flow-mediated dilation. Flow-mediated dilation occurs when blood vessels dilate, or open up, in response to increased blood flow, which allows the blood to flow more freely. Vascular endothelial cells play a role in blood vessel dilation; endothelial cell dysfunction is considered to be the first sign of atherosclerosis, or "hardening of the arteries." When there is endothelial dysfunction, the blood vessels do not dilate as much and the heart has to pump harder to push blood through the vessels.

After 16 weeks, the researchers measured the participants' flow-mediated dilation again and found that flow-mediated dilation had

improved in the treatment group, but not in the placebo group.

"This points to a beneficial effect of Vitamin D supplementation on endothelial cell function," says Dr. Harris. He adds that this is good news for African-Americans, given their risks for CVD. "If you're deficient in Vitamin D and you take supplements, you have a good probability of increasing endothelial function and therefore decreasing the risk of cardiovascular disease."

Exactly how Vitamin D works on the endothelial cells is the "million-dollar question" Dr. Harris says. "Vitamin D interacts with a lot of different systems in the body. It may decrease inflammation, which is better for endothelial function."

He added that more research is needed to discover the long-term effects of supplementation.

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