

Low vitamin D levels associated with an increased risk of peripheral arterial disease

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Low levels of vitamin D may be associated with an increased risk for peripheral arterial disease (PAD), researchers reported at the American Heart Association's Arteriosclerosis, Thrombosis and Vascular Biology Annual Conference 2008.

Results of the study will also be simultaneously published in *Arteriosclerosis, Thrombosis, and Vascular Biology: Journal of the American Heart Association*.

PAD occurs when arteries in the legs become narrowed or clogged with fatty deposits, reducing blood flow to the legs. PAD affects about 8 million Americans and is associated with significant disease and death, according to the American Heart Association's Heart Disease and Stroke Statistics – 2008 Update.

Vitamin D, or 25-hydroxyl vitamin D, is converted by the body to a hormone that makes bones stronger. Severe vitamin D deficiency can cause diseases such as rickets in children. Scientists are only beginning to explore the relationship between 25-hydroxyl vitamin D and cardiovascular disease.

“In animals, vitamin D has anti-inflammatory activity,” said Michal Melamed, M.D., M.H.S., lead author of the study and assistant professor of Medicine and Epidemiology and Population Health at Albert Einstein College of Medicine in New York City.

“In addition, in mice, vitamin D is a regulator of one of the hormone systems that affects blood pressure. The cells in the blood vessels in the body have receptors for vitamin D, so vitamin D may have direct effects on the vessels, although this has not been fully worked out.”

To study whether there is a relationship of vitamin D with PAD, Melamed and colleagues analyzed data from a national survey measuring vitamin D levels in 4,839 U.S. adults. Researchers in that survey had also documented ankle-brachial index, a PAD screening tool that measures blood flow to the legs.

“We also measured other risk factors for peripheral arterial disease such as cholesterol levels, diabetes, blood pressure and inflammatory markers such as C-reactive protein,” Melamed said.

The researchers found that higher levels of vitamin D correlated with a lower prevalence of PAD. In the participants with the highest vitamin D levels — more than 29.2 nanogram per milliliter (ng/mL) — only 3.7 percent had PAD. Among those with the lowest levels — less than 17.8 ng/mL — 8.1 percent had PAD.

“After adjusting for age, sex, race and co-existing health problems, we found adults in the lowest vitamin D group had a 64 percent higher prevalence of PAD compared to those with the highest vitamin D levels,” Melamed said. “For each 10 ng/mL lower vitamin D level, there was a 29 percent higher risk of peripheral arterial disease.”

This does not mean that vitamin D is having a protective effect itself, although this is one hypothesis. It is also possible that higher vitamin D levels may be a marker of other health practices, e.g., eating a healthier diet or engaging in more physical activity – which could be related to sun exposure, though not necessarily, researchers said.

The findings need to be addressed in a large randomized clinical trial of vitamin D supplementation, Melamed said. This could be done with natural sources from food.

“Other vitamins have been thought to help prevent cardiovascular disease, such as vitamin E, which did not pan out after being tested in a randomized clinical trial,” Melamed said. “Therefore, we would not recommend people start taking vitamin D supplements without talking to their doctors. However, we recommend eating a balanced diet. People obtain vitamin D either through exposure to the sun or from foods, especially fish and fortified milk and other fortified foods.”

Source: American Heart Association

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