Physicians Explore Link Between Vitamin D Deficiency and Hypertension

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Drs. William White and Pooja Luthra are studying the relationship between vitamin D deficiency and hypertension. Photo by Lanny Nagler

(PhysOrg.com) -- Drs. William White and Pooja Luthra at the University of Connecticut Health Center are investigating a possible link between vitamin D deficiency and high blood pressure.

Vitamin D is known to be important to bone health, but what about heart health?

UConn Health Center physician-scientists are looking into a possible link between vitamin D deficiency and high blood pressure.

“Often patients don’t realize they have a vitamin D deficiency, or are unaware of its relationship with health problems other than bone

disorders," says Dr. William B. White, professor of medicine and a hypertension expert in the Pat and Jim Calhoun Cardiology Center. White served as the study's principal investigator.

White and Dr. Pooja Luthra, assistant professor of medicine and an endocrinologist in the New England Musculoskeletal Institute, are recruiting patients with a diagnosis of treated or untreated high blood pressure and a vitamin D level in the insufficient range of 12 to 29. They also must not be taking regular doses of vitamin D.

"Epidemiologic studies have shown an association between measured vitamin D deficiency and increased risk for incident hypertension that is independent of age, body mass index, physical activity, race, and menopausal status," Luthra says. "There is a need for clinical research studies that evaluate the effects of antihypertensive drugs in hypertensive patients with documented vitamin D insufficiency."

"One of the possible mechanisms of elevated blood pressure in patients with vitamin D deficiency is the activation of renin, an enzyme produced in the kidney," White says.

Research involving genomic mouse models found that those with vitamin D deficiency developed elevated production of renin and the protein angiotensin II, leading to hypertension.

In the 14-week, double-blind, randomized trial, participants will first receive either vitamin D replacement or the renin inhibitor aliskiren, then both medications in combination. White and Luthra will assess the corresponding changes in blood pressure both in the office setting and over a 24-hour period using ambulatory blood pressure monitoring, calcium and vitamin D concentrations, and biochemical parameters involving the renin-angiotensin system.

“We have reason to believe there’s a connection here, and this research will increase our knowledge regarding vitamin D as a cardiovascular risk factor,” White says. “We will try to establish the effects of vitamin D replacement and the impact of direct inhibition of renin in patients with vitamin D deficiency on blood pressure. In the end, we hope that we can spread awareness about the association so that if patients with hypertension ask their doctors, ‘What if I have vitamin D deficiency?’ then their doctors will be prepared to make informed decisions about what to do about this problem.”

The UConn Health Center study is supported by an independent $480,000 investigator-initiated grant from Novartis Pharmaceuticals, Inc., in East Hanover, N.J., over the next three years.

Provided by University of Connecticut (news : web)

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