Low vitamin D linked to higher risk of renal disease in lupus

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Low levels of vitamin D were associated with higher rates of end-stage renal disease in patients with systemic lupus erythematosus, or lupus, according to new research findings presented this week at the 2017 ACR/ARHP Annual Meeting in San Diego.

Lupus is a chronic (long-term) inflammatory autoimmune disease in which an unknown trigger causes the body's immune system to attack its own healthy tissues. The most common type of lupus is systemic lupus erythematosus (SLE), a complex, multiple symptom autoimmune disease that can cause inflammation, pain and damage to various parts of the body. While anyone can develop lupus, it occurs 9-10 times more often in women than in men and is 2-3 times more common among women of color.

To clarify the role vitamin D levels may play in lupus inflammation, a group of researchers at Johns Hopkins University School of Medicine in Baltimore, Maryland, conducted a study to determine how low vitamin D levels could predict later organ damage. Low levels, defined as insufficiency or deficiency, of vitamin D is a common problem for patients with SLE. Some evidence suggests that vitamin D replacement therapy may help improve renal disease activity.

The researchers analyzed data on 1,392 SLE patients, including their first medical office visit where vitamin D levels were measured, and then their organ or tissue damage on all of the patient's follow-up clinic visits. The patients included in this study were 92 percent female, had a

mean age of 47.3 years, and were 50 percent Caucasian and 41 percent African-American.

Patients were categorized based on 25-hydroxy vitamin D levels that were either below 20 nanograms (ng) per milliliter (ml), or at or above 20 ng/ml on their first office visit. At their first office visit where vitamin D levels were measured, 27.3 percent of the patients had levels below 20 ng/ml.

The researchers then calculated the risk of lifetime organ damage for patients with low vitamin D levels using the Systemic Lupus International Collaborating Clinics/American College of Rheumatology (SLICC/ACR) Damage Index scoring system. Organ damage rates were also adjusted for age, gender and ethnicity.

"We have shown that supplementing vitamin D reduces urine protein, which is the best predictor of future renal failure," said Michelle A. Petri, MD, PhD, Director, Hopkins Lupus Center and a lead author of the study.

According to the study's results, the relative risk of renal damage was the highest for SLE patients whose vitamin D levels were insufficient, or a relative risk of 1.87 (1.66 adjusted). Skin damage was another concern, with a relative risk of 1.69 (1.22 adjusted). Total organ damage relative risk was 1.11 (1.17 adjusted). Other long-term outcomes measured included ocular, neuropsychiatric, pulmonary, cardiovascular, gastrointestinal and musculoskeletal, but the relative risk of damage to these organ systems was not significant. There was no association between low vitamin D and musculoskeletal damage, including osteoporotic fractures, in the study.

The researchers concluded low vitamin D is associated with a higher risk of total organ damage and with end-stage renal disease for patients with

lupus.

"Supplementary vitamin D is very safe," said Dr. Petri. "It helps to prevent one of the most dreaded complications of SLE, and likely has a role in preventing blood clots and cardiovascular disease as well. Vitamin D supplementation, which can reduce proteinuria, should be a part of the treatment plan for lupus nephritis patients."

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