Low vitamin D, high disease damage in SLE may be clues to CVD risk and progression

Source: Rheumatology Network


People with systemic lupus erythematosus (SLE) are at increased risk of cardiovascular disease (CVD), and tell-tale signs may include vitamin D deficiency and more early disease damage, according to new studies by an international team of researchers.

One study assessed serum vitamin D in 875 SLE patients from a large multi-national registry. It found that the lower the baseline serum 25-hydroxyvitamin D (25[OH]D level, the more the likelihood of hypertension and hypercholesterolemia. Patients in lower quartiles of vitamin D also had greater inflammation, as well as higher Systemic Lupus Erythematosus Disease Activity Index 2000 (SLEDAI-2K) scores and more disease damage -- even after adjusting for age, sex, race, body mass index, the season (the amount of sun exposure), and country of origin.

The opposite is true of patients in the highest quartile of serum vitamin D, according to the study among the inception cohort in the Systemic Lupus International Collaborating Clinics (SLICC) Registry for Atherosclerosis. The majority of patients were women, half of whom were Caucasian and 13% postmenopausal.

The study also finds that serum vitamin D levels are not independently associated with the incidence of CVD events (e.g., heart attack and stroke) over an 11-year follow-up -- but the risk of CVD events is lower with higher vitamin D levels.

Seventy-two percent of study patients had 25(OH)D levels below 30 ng/ml, considered an indication of vitamin D insufficiency. The lowest vitamin D quartiles were 4-13 ng/ml and 14-21 ng/ml of 25(OH)D and the highest quartile was 31ng/ml to 91 ng/ml.

The second study looked for at progression of subclinical atherosclerosis among 149 women with SLE in the Chicago-based Study of Lupus Vascular and Bone Long-Term Endpoints (63% Caucasian with a mean age of 43), as well as among 124 controls. It found that higher baseline SLE damage may predict the progression of coronary artery calcium (CAC), a marker for CVD.

At the same time, greater disease activity at baseline, seen in excessive complement levels (hypocomplementemia) and corticosteroid use, may forecast increased progression of aortic calcium (AC) among SLE patients over 10 years.

This is the first study to look at AC progression in SLE.

Low vitamin D is linked with increased CVD risk in the general population. However, lupus patients are known to have a greater prevalence of low vitamin D -- and SLE itself is a risk factor not only for CVD but also accelerated atherosclerosis.

In addition to bone health, the vitamin D endocrine system plays a role in the concentration of calcium in extracellular fluid, where it supplies function to muscles including those in the heart. Vitamin D factors into a number of autoimmune diseases. Its receptor is thought to have immunomodulatory, antiproliferative, antibacterial, and antiinflammatory properties.

The SLICC registry of 1,427 SLE patients at centers in in 11 countries, including North America, Europe, and Asia, is studying risk factors for atherosclerosis and cardiovascular events.