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Vitamin D Deficiencies May Impact Onset of Autoimmune Lung Disease

A new study shows that vitamin D deficiency could be linked to the development and severity of certain autoimmune lung diseases.

These findings are being reported in the Jan. 4 edition of the journal *Chest*.

Brent Kinder, MD, UC Health pulmonologist, Director of the Interstitial Lung Disease Center at the University of Cincinnati and lead investigator on the study, says vitamin D deficiencies have been found to affect the development of other autoimmune diseases, like lupus and type 1 diabetes.

"We wanted to see if, lack of sufficient vitamin D would also be seen in patients who are diagnosed with an autoimmune Interstitial Lung Disease (ILD) and whether it was associated with reduced lung function," he says.

Some ILD patients first discover they have an undifferentiated connective tissue disease, a chronic inflammatory autoimmune disease that affects multiple organ systems but is not developed enough for physicians to easily recognize and categorize.

Autoimmune diseases occur, when the body produces abnormal cells that turn on the body and attack major organs and tissues. Connective tissue diseases include lupus, scleroderma, polymyositis, vasculitis, rheumatoid arthritis and Sjogren's syndrome.

"ILD is a group of diseases that mainly affect the tissues of the lungs instead of the airways, like asthma and emphysema do," says Kinder. "It causes scarring of the lungs, is more difficult to diagnosis and treat than other kinds of lung diseases and is often fatal".

"Since vitamin D deficiency has implications for other manifestations of autoimmune illnesses, we wanted to see it had an effect on the lungs of this patient population."

Researchers evaluated 118 patients from the UC ILD Center database -- 67 with connective tissue disease-related ILD

and 51 with other causes of lung fibrosis -- for serum 25-hydroxyvitamin D levels, which indicate levels of vitamin D in the body. Then, they evaluated associations between these serum levels and the patients' conditions.

Overall, those with connective tissue disease-related ILD were more likely to have vitamin D deficiency -- 52 percent versus 20 percent -- and insufficiency -- 79 percent versus 31 percent -- than other forms of ILD.

Among this same group of patients, reduced serum 25-hydroxyvitamin D levels were strongly associated with reduced lung function.

"These findings suggest that there is a high prevalence of vitamin D deficiency in patients with ILD, particularly those with connective tissue disease," Kinder says. "Therefore, vitamin D may have a role in the development of connective tissue disease-related ILD and patients' worsening lung function".

"One of the next steps is to see if supplementation will improve lung function for these patients."

He adds that if these findings are confirmed and vitamin D supplementation is shown to be effective in clinical trials, this may also provide a more natural, inexpensive treatment for the illness.

"Vitamin D is known to be a critical dietary factor for bone and skin health," he says. "Now, we're learning that it could potentially be modified as a treatment to improve ILD as opposed to other, more toxic therapies."

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