

Low thyroid function common in chronic kidney disease

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Many patients with chronic kidney disease (CKD) have mild reductions in thyroid function, or subclinical hypothyroidism—a condition that becomes more common as kidney function declines, according to a study in the September 2008 issue of *Clinical Journal of the American Society of Nephrology* (CJASN).

"Although no recommendations are available regarding the treatment of mild abnormalities of thyroid hormone levels in patients with CKD not requiring dialysis, these abnormalities could represent a risk factor for cardiovascular disease and might also be implicated in kidney disease progression," comments lead authors Dr. Michel Chonchol of University of Colorado Health Sciences Center and Dr. Giovanni Targher of University of Verona, Italy.

The researchers analyzed routine blood test results in more than 3,000 patients with CKD who were not receiving dialysis. Patients with CKD have loss of kidney function that, in many cases, progresses to end-stage renal disease (ESRD)—permanent loss of kidney function requiring dialysis or transplantation.

Overall, 9.5 percent of patients with CKD had subclinical hypothyroidism. This means reductions in thyroid hormone levels that are detected on blood tests with no abnormal signs or symptoms.

The lower the patients' kidney function, the higher their risk of subclinical hypothyroidism. Seven percent of patients with mild CKD

had low thyroid function, compared to 18 percent of those with moderate CKD. After adjustment for other factors, patients with moderate CKD were 73 percent more likely to have subclinical hypothyroidism.

As laboratory tests become more sophisticated, the ability to detect subtle changes in thyroid function has improved. Regardless of the cause, subclinical hypothyroidism is linked to an increased risk of cardiovascular disease and reduced heart function. Patients with CKD are at greatly increased risk of cardiovascular disease.

Subclinical hypothyroidism is common, especially among older adults; lab tests show low thyroid function in four to 10 percent of the general population. Although increased rates of thyroid abnormalities have been reported in patients with ESRD, the new study is the first to show an increased rate of subclinical hypothyroidism in CKD patients not requiring chronic dialysis.

The nature and consequences of the link between CKD and low thyroid function are not yet clear. When hypothyroidism becomes more severe, it can cause reduced heart function, which can lead to progressively worsening kidney function. Thus the presence of subclinical hypothyroidism in patients with CKD might be a risk factor for both cardiovascular disease and progressive kidney disease.

Because of the lack of follow-up data, the study cannot determine whether there is any causal relationship between subclinical hypothyroidism and CKD. "Further studies should evaluate if mild elevations of the thyroid hormone are harmful for patients with kidney disease and explore the possibility of treating mild abnormalities of thyroid function with thyroid hormone replacement," according to Drs. Chonchol and Targher.

Source: American Society of Nephrology

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