Low Thyroid Function Linked to Advanced Liver Disease

People with below-normal thyroid function were at higher risk for liver fat accumulation and advanced liver fibrosis in a recent study.

August 28, 2017 By Liz Highleyman

People who had low thyroid function were significantly more likely to have non-alcoholic steatohepatitis and about twice as likely to have advanced liver fibrosis than those with strictly normal thyroid function, according to a study recently published in Clinical Gastroenterology and Hepatology.

Fatty liver disease, often associated with obesity and metabolic syndrome, is a leading cause of liver disease in the United States. Non-alcoholic fatty liver disease (NAFLD) and its more severe form, non-alcoholic steatohepatitis (NASH), refer to fat accumulation in the liver in people who do not drink heavily. Over time, the buildup of fat and the development of scar tissue, known as fibrosis, can interfere with normal liver function.

Donghee Kim, MD, of Stanford University School of Medicine, and colleagues conducted a study to evaluate the effect of thyroid-stimulating hormone (TSH) on the severity of liver damage associated with NAFLD. A higher TSH level or a lower level of the hormone thyroxine in the blood indicates worse thyroid function.

This cross-sectional (single point in time) study included 425 people with NAFLD as determined by liver biopsies. Just over half were men, and the average age was 53. All participants underwent anthropometric (body shape and composition) measurements and laboratory and clinical evaluations.

Two thirds of the participants were classified as having strictly normal thyroid function (TSH 0.4 to 2.5 milli-international units per liter). Of the remainder, 84 were found to have thyroid function on the low end of the normal range, also known as low-normal (TSH 2.5 to 4.5 mIU/L), while 59 were classified as having subclinical hypothyroidism (TSH above 4.5 mIU/L).

The study showed that people with low thyroid function were significantly more likely to have NASH, compared with those who had strictly normal thyroid function (52.4 percent versus 37.2 percent, respectively). In addition, twice as many people with low thyroid function had advanced liver fibrosis (21.0 percent versus 10.6 percent).

Among participants with low thyroid function, those with subclinical hypothyroidism were more likely than those with low-normal thyroid function to have both NASH (57.6 percent versus 48.8 percent, respectively) and advanced fibrosis (25.4 percent versus 17.9 percent). The likelihood of having NASH and advanced fibrosis increased significantly as blood TSH levels rose.

Together, low-normal thyroid function and subclinical hypothyroidism were associated with a 61 percent greater risk of NASH in a multivariate analysis that took into account other risk factors such as body weight. The researchers also found that people with low thyroid function had more extensive steatosis, characterized by more “ballooning” (swelling due to cell injury) and scarring of liver cells.

“Subclinical hypothyroidism and low-normal thyroid function are independent predictors of NASH and advanced fibrosis, confirming the relationship between these diseases,” the study authors concluded.

The researchers suggested that thyroid hormone signaling may play a role in regulating hepatic stellate cells, a type of liver cell that produces the scar tissue that characterizes fibrosis. They noted that a drug that blocks thyroid hormone receptors in the liver is currently under development for the treatment of NASH.

© 2026 Smart + Strong All Rights Reserved.
http://beta.docker.hepmag.com/article/low-thyroid-function-linked-advanced-liver-disease