Liver Stiffness Before Hepatitis C Treatment Predicts Liver Cancer Risk

This measurement also informed researchers about the risk of loss of liver function and death in people cured of hepatitis C.

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A liver stiffness measurement taken before beginning direct-acting antiviral (DAA) therapy for hepatitis C may help predict hepatocellular carcinoma (HCC) risk in people who have attained a sustained virological response (SVR). In a study published in PLOS ONE, researchers suggested a cutoff value of 17.5 kilopascal (kPa) as the predictive measurement.

“Pretreatment [liver stiffness measurement] predicts risk of HCC, decompensation and all-cause mortality in patients with SVR after DAA treatment,” Jacob Søholm, PhD, of Odense University Hospital in Denmark, and colleagues wrote.

Over time, hepatitis C can lead to liver fibrosis (scarring), cirrhosis and HCC, the most common type of liver cancer. An imaging method known as transient elastography, or FibroScan, measures liver stiffness, an indicator of fibrosis and the likelihood of developing liver cancer.

Liver stiffness is known to decrease after starting direct-acting antiviral therapy for hepatitis C because the treatment reduces liver inflammation and fibrosis, but the effects of greater liver stiffness after treatment are not well understood.

Successful hepatitis C treatment reduces but does not eliminate the risk of HCC, especially in people who have already progressed to advanced fibrosis or cirrhosis by the time they are cured. Current guidelines recommend that people with advanced fibrosis or cirrhosis continue with post-treatment surveillance for liver cancer every six months. Since a large number of such individuals continue to be cured with antiviral therapy, determining the need for surveillance after treatment is necessary.

The researchers assessed the ability of a pretreatment liver stiffness measurement (LSM) to anticipate the development of hepatocellular carcinoma, the occurrence of liver decompensation and all-cause mortality in people with chronic hepatitis C who attained SVR—an undetectable viral load 12 weeks after completing treatment, which is considered a cure—after DAA therapy.

From July 2012 to May 2019, the team identified 773 individuals with hepatitis C who had achieved

SVR after antiviral therapy using the Danish Database for Chronic Hepatitis B and C, a nationwide database in Denmark. The average age was 54 years, and 64% were men. Diabetes, heavy alcohol use and injection drug use were reported for 11%, 51% and 63% of the study population, respectively.

Some 98% of the cohort had an LSM done before hepatitis C treatment. Am LSM below 7.0 is generally considered normal, and an LSM above 14.0 indicates a high probability of cirrhosis.

In the group as a whole, the median pretreatment LSM was 11.6 kPa. The participants were split into three groups on the basis of their pretreatment LSM. Some 42% had a pretreatment LSM of less than 10.0 kPa, 32% had a score between 10.0 and 17.4 kPa and 26% had a score between 17.5 kPa and 75.0 kPa.

After a median follow-up period of 36 months, 336 people (44%) had an LSM higher than 12.5 kPa, indicating probable cirrhosis. During this period, 11 people (1.4%) developed liver cancer, 14 (1.5%) developed compensated cirrhosis and 38 (4.9%) died. All-cause mortality was linked to diabetes and a pretreatment LSM of at least 17.5 kPa.

People with a pretreatment LSM of at least 17.5 kPa tended to be older, male or heavy alcohol users or to have diabetes, compared with those with a stiffness measurement below 10.0 kPa.

The researchers found that a pretreatment LSM of 17.5 kPa could ascertain which individuals had a high risk of developing liver cancer, with a 99% accuracy in identifying those who were unlikely to progress. Further, in people with a pretreatment LSM higher than 17.5 kPa, the incidence of liver cancer rose 10-fold compared with people who had a measurement below this value.

In contrast, those with a measurement between 10.0 kPa and 17.4 kPa were not significantly more likely to develop liver cancer than people with a stiffness value below 10 kPa.

“Patients with a [pretreatment] LSM <17.5 kPa and no other risk factors for chronic liver disease appear not to benefit from HCC surveillance for the first three years after treatment,” wrote the researchers. “Longer follow-up is needed to clarify if they can be safely excluded from posttreatment HCC screening hereafter.”

Click here to read the study in PLOS ONE.
