Liver Cancer Screening Improves Survival but Is Underused

People whose hepatocellular carcinoma was detected by screening were more likely to receive curative treatment and lived longer.

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Screening for hepatocellular carcinoma (HCC), the most common type of liver cancer, led to earlier detection and was associated with improved survival, but only about 40% of cases were detected this way, according to study results published in JAMA Network Open. Based on these findings, greater efforts are needed to increase screening among people at risk, including those with viral hepatitis or fatty liver disease.

“These findings suggest that HCC screening is associated with reduced mortality, even after accounting for lead-time and length-time biases, and remains an important target for interventions to increase utilization,” the study authors concluded.

Over years or decades, hepatitis B, hepatitis C, metabolic dysfunction-associated steatotic liver disease (MASLD; formerly known as non-alcoholic fatty liver disease, or NAFLD) and heavy alcohol consumption can cause fibrosis, cirrhosis and liver cancer.

Darine Daher, MD, of the University of Texas Southwestern Medical Center, and colleagues conducted a retrospective study to characterize the clinical benefits of HCC screening in a diverse cohort of at-risk individuals.

Liver cancer is often diagnosed late, when it is more difficult to treat, and it is a leading cause of cancer-related death worldwide. Patients with early-stage HCC have five-year survival rates approaching 70% with curative treatment, compared with a median survival of one to two years with palliative therapies for those with more advanced cancer, according to the authors.

Liver cancer screening is not indicated for the general population, but guidelines from the American Association for the Study of Liver Diseases recommend regular surveillance using ultrasound imaging, with or without alpha-fetoprotein (AFP) blood tests, for people at higher risk. Even after being cured with antiviral therapy, people with chronic hepatitis C should continue to undergo liver cancer screening if they have progressed to advanced fibrosis or cirrhosis. People with chronic hepatitis B are known to develop liver cancer even without cirrhosis.

The study population included 1,313 people seen at two health systems in Dallas who were newly

diagnosed with liver cancer between January 2008 and December 2022. Three quarters were men, and the median age was approximately 62 years. About 36% were white, 30% were Black and 27% were Latino.

The participants had cirrhosis due to any cause or hepatitis B with or without cirrhosis. The most common causes of cirrhosis were hepatitis C (60%), alcohol-related liver disease (14%), MASLD (12%) and hepatitis B (7%). Nearly two thirds had Child-Pugh class A, or well compensated cirrhosis, while the rest had class B, indicating significant functional compromise. People with class C, or decompensated cirrhosis, were excluded because they have a high risk of death from other causes and HCC screening is not recommended.

HCC was revealed by screening in 42% of participants, meaning well over half of the cases were not detected by screening. People whose liver cancer was detected by screening were more likely to have early-stage HCC (71%), compared with those whose cancer was not caught by screening (46%). However, tumor growth rates and the proportion of people with slow-growing tumors were similar in both groups.

People with screen-detected HCC were more likely to receive curative treatment than those whose cancer was not detected this way (51% versus 34%, respectively). But looking only at those who received curative treatment, outcomes were comparable in both groups.

What's more, patients whose liver cancer was detected by screening had significantly lower mortality. The median survival time was twice as long for this group compared with those whose HCC was not this way (37 versus 19 months, respectively). Among people whose cancer was not detected by screening, those with incidental detection (for example, during a procedure for another condition) fared better than those who were diagnosed after developing symptoms.

The screening advantage remained after correcting for lead-time bias (survival time appears longer because the cancer was diagnosed sooner, even if patients don't live longer) and length-time bias (screening is more likely to detect slow-growing tumors that are less likely to be fatal). After these adjustment, three-year and five-year survival rates were still higher for people with screen-detected HCC compared with those whose cancer was not detected by screening. Three-year survival rates were 37% versus 25%, respectively, and five-year survival rates were 25% versus 8%.

These findings conflict with those of a previous Veterans Health Administration study that did not see an association between liver cancer screening and reduced mortality, but this may be because those patients did not received curative treatment after their tumors were detected early.

"Overall, these data highlight the importance of promoting HCC screening implementation in practice. Several studies have demonstrated persistent underuse of screening, related to a combination of patient and practitioner barriers," the researchers wrote. "These data reinforce that screening is only the first step in the cancer care continuum, and patients with early-stage detection must undergo timely curative treatment to have improved survival."

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