Quality of Surveillance for Hepatocellular Carcinoma Determines Outcome in Cirrhotic Patients

Stravitz RT, Heuman DM, Chand N, et al. Surveillance for hepatocellular carcinoma in patients with cirrhosis improves outcome. Am J Med 2008;121:119–26.

Study Overview

Objective. To determine whether the quality of surveillance for hepatocellular carcinoma (HCC) in patients with cirrhosis influences prognosis by affecting access to liver transplantation.

Design. Retrospective cohort study.

Setting and participants. 269 patients with cirrhosis and HCC from 2 hospitals in Richmond, VA were categorized into 3 groups based on quality of surveillance in the year prior to HCC diagnosis: standard of care surveillance (group 1), substandard surveillance (group 2), and no surveillance (due to cirrhosis not being recognized; group 3). Standard of care surveillance was defined as receipt of an abdominal imaging procedure within 1 year of cancer diagnosis.

Main outcome measures. Tumor stage at cancer diagnosis, likelihood of undergoing liver transplantation, and 3-year survival.

Main results. Of the 269 patients, 86% were men, 25% were African American, and the mean age at cancer diagnosis was 57 years. 172 patients received standard of care surveillance (group 1), 48 patients received substandard surveillance (diagnosed with cirrhosis but did not receive an abdominal imaging; group 2), and 59 patients received no surveillance (due to unknown cirrhosis; group 3). HCC was diagnosed at stages 1 and 2 in 70% of patients in group 1, 37% of patients in group 2, and 18% of patients in group 3 ($P < 0.001$). Liver transplantation was performed in 32% of patients in group 1, 13% of patients in group 2, and 7% of patients in group 3 ($P < 0.001$). Three-year survival in patients in group 3 was significantly worse than in patients in groups 1 or 2 (12% vs. 39% and 27%, respectively; each $P < 0.05$). 80% of patients in group 3 had subtle abnormalities of cirrhosis on routine laboratory tests.

Conclusion. Among patients with cirrhosis, active surveillance leads to earlier diagnosis of HCC, greater access to liver transplantation, and higher survival rates.

Commentary

Primary liver cancer, which accounts for approximately 2% of cancers in the United States, is principally due to chronic liver damage from viral hepatitis (types B and C) and alcohol abuse, and its incidence is rising. Liver transplantation was recently shown to be an effective treatment in patients with early-stage malignancy. In support of this treatment, new patient eligibility criteria for liver transplantation were established in 1997.

Although there are no known strategies to prevent HCC in patients with cirrhosis, high-quality surveillance using ultrasonography should allow clinicians to identify patients with early-stage HCC. However, until recently, we have not had convincing evidence that screening patients for HCC improves outcome.

The study by Stravitz et al provides important insights for clinicians who manage patients with chronic liver disease. The study provides evidence that active surveillance, using annual ultrasounds, can identify patients with early-stage HCC, leading to more liver transplants and lower mortality rates. Although the study suggests that surveillance affects outcomes, its design and implementation limit its ability to be more conclusive. Because the investigators used a retrospective cohort design, patients were not randomly assigned to screening versus no screening. In fact, clinicians likely chose not to screen some patients because they had comorbidities or other factors that would have made those patients poor candidates for liver transplantation. These confounding factors were probably partly responsible for the lower rates of transplantation and higher rates of death in the suboptimal surveillance group.

Finally, the high mortality rates in the groups of patients who were not screened and were not known to have cirrhosis (groups 2 and 3) suggest another area for quality improvement—better identification of cirrhosis in patients with chronic liver disease. The failure to identify such patients will make any screening for HCC difficult.

Applications for Clinical Practice

Although the evidence is not yet definitive, regular screening for HCC in patients with chronic liver disease will likely help to increase the probability of early-stage diagnosis and therefore receipt of life-saving liver transplantation. Furthermore, greater emphasis should be placed on the detection of cirrhosis among high-risk patients.

—Review by Ashish K. Jha, MD, MPH

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