

HCC IN FOCUS

Current Developments in the Management of Hepatocellular Carcinoma

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Strategies for Improving Hepatocellular Carcinoma Surveillance Rates



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G&H Why is hepatocellular carcinoma surveillance important?

LB Numerous guidelines, including from the American Association for the Study of Liver Diseases and American Gastroenterological Association, recommend screening for hepatocellular carcinoma (HCC) in high-risk patients who have hepatitis B as well as patients who have advanced fibrosis from any cause. Optimal surveillance consists of ultrasound in combination with the blood test alpha-feto-protein every 6 months. The goal of this surveillance is to

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proactively detect liver cancer when it is small and treatable so that patients can still undergo curative therapies. Before surveillance became widespread practice, cancers were typically discovered at a late stage and there were often no therapies available. In a meta-analysis, surveillance was associated with an improved early-stage detection rate (risk ratio, 1.86), curative treatment rate (risk ratio, 1.83), and survival after lead-time bias adjustment (hazard ratio, 0.67). The more patients receive curative

therapy, the more likely they are to have longer survival. There is a lot of nonrandomized data on HCC surveillance in populations with different types of liver conditions, specifically advanced fibrosis and cirrhosis from any etiology, but the best evidence for HCC surveillance currently available is a landmark randomized controlled trial (RCT) performed in patients with chronic hepatitis B in China. This is the only RCT on HCC surveillance.

G&H What are the biggest barriers to HCC surveillance?

LB According to a recent meta-analysis, less than 10% of patients who should be undergoing surveillance are receiving it biannually. There is a large variation in access to care and a lot of fluctuation in surveillance rates based on the type of care patients are receiving. For example, patients who are getting care from a tertiary center or a hepatologist or gastroenterologist have the highest screening rates. Because there are not enough hepatologists and gastroenterologists for the populations in need, a lot of patients receive their HCC surveillance from a primary care doctor. In my opinion, one of the greatest barriers to surveillance is that one-third of patients in the United States do not even have a primary care physician, never mind a subspecialist. Other barriers include the cost of surveillance imaging, distance to an imaging center, and poor awareness of the need for surveillance. The primary care clinician needs to remember to order it, and patients need to understand why surveillance is important. There are not as many public awareness campaigns for HCC surveillance as there are for other cancer screenings. All of

these barriers combine to result in the extremely low rates of completion of surveillance.

G&H Could you discuss research that has looked at the use of mailed outreach for HCC surveillance?

LB Several RCTs have been conducted on mailed outreach. In an RCT in 2017, reminders were mailed to approximately 1800 patients in a safety-net health system in an urban setting. The study compared the use of mailed outreach (notifying patients to come in for HCC surveillance) with or without patient navigation (a nurse or other clinician contacting patients and helping them schedule their appointment and navigate their way through the system) vs usual care. Mailed outreach by itself improved the rate of screening, although it was still less than 50%. Adding navigation did not improve upon mailed outreach in this study, but other studies have found a benefit with navigation. I think the true value of patient navigation is still open for debate. It is the most resource-intensive of all of the strategies to try to improve HCC surveillance. It would be wonderful if navigation was easily accessible for all patients, along with mailed outreach and multiple other checkpoints along the way, to make sure that the surveillance gets done, but uptake comes down to what is feasible for each health care system in terms of resources and cost.

G&H What are the benefits and limitations of using electronic health record–based clinical reminders for HCC surveillance?

LB Electronic health record (EHR)-based reminders pop up during patient visits to nudge the provider to order HCC surveillance. Reminders that are targeted toward primary care are fairly straightforward, easy to implement, and are cost-effective in the sense that they do not require additional health care providers or resources. Several studies have looked at different types of EHR-based reminders and have found that they can improve rates of surveillance. However, this approach is limited in that the patient has to have a doctor in the first place, the clinician has to see and act on the reminder, and imaging has to be accessible and acceptable to the patient; therefore, this approach is not perfect by any means.

G&H What other strategies have been tried to improve HCC surveillance?

LB Work has been done with the Veterans Administration (VA) on population health dashboards, where it is possible to monitor an entire population, identify who

is due for surveillance, and then proactively reach out to them. That approach has a lot of potential, although it is most applicable for a system like the VA with a defined patient population. Studies have looked at education for providers, especially primary care physicians, to raise awareness around HCC surveillance. There have also been studies on nurse-led surveillance programs where nurses

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work through registries and, independently of physicians, track and manage surveillance. I think that strategy also has potential. Other approaches have focused on patient education and trying to improve patient knowledge and engagement. In the future, I hope for greater advocacy for HCC surveillance, the way there is for breast cancer, colon cancer, and cervical cancer screening.

G&H Could you expand on the cost-effectiveness and resource implications of implementing these strategies?

LB Simulation modeling has shown that programs cost different amounts depending on how intensive the intervention is (eg, mailed outreach vs patient navigation). One study performed in 2025 showed that early-stage HCC detection increased by 48% with mailed outreach, which led to a cost savings of more than \$250,000 and 140 additional quality-adjusted life years per 10,000 patients over 10 years. EHR-based reminders are fairly low cost. Once the infrastructure is put into place, there is no additional cost to have reminders in a patient's EHR. On the other hand, patient navigation is fairly resource-intensive.

G&H Are there any disadvantages associated with these surveillance strategies?

LB The process of surveillance imaging itself is very safe and noninvasive. Surveillance aims to detect HCC early, but the tests are not perfect and there will inevitably be

false-positive results. This is the biggest disadvantage. In the event of a positive result, a patient has to come back for additional imaging or more frequent surveillance, which can be a source of anxiety and expense.

G&H On which patient populations should these strategies be focused?

LB Efforts to increase surveillance are likely going to have the most impact in places where the baseline surveillance rates are lowest, for example, in primary care. The impact will be less at a specialty practice where surveillance rates are already fairly high. Work is needed to remove barriers for patients who have more trouble accessing care, like rural patients and those with historic mistrust of the health care system.

G&H What further research is needed in this area?

LB There is still only one RCT on HCC surveillance, and that was in patients with hepatitis B. Given the bulk of evidence already supporting HCC surveillance, it seems unlikely there will ever be a trial in patients with a wider range of liver disease etiologies. However, different types of imaging modalities such as abbreviated magnetic resonance imaging are currently undergoing evaluation. In terms of what I see as research gaps, many patients have trouble physically getting to an imaging center, and there are cost concerns, particularly since screenings have to be done over and over. Therefore, having a validated biomarker that could be used without imaging would be immensely helpful. Last but not least, I can tell you as a general internist that the primary care ecosystem in the United States is struggling to an extraordinary degree right now and is only going to get worse. The National Center for Health Workforce Analysis projects a deficit

of approximately 68,000 primary care clinicians by 2036. Without enough primary care clinicians, it is going to be difficult to keep HCC surveillance rates stable in the years ahead, never mind improve them. Therefore, research on additional ways to perform screenings and offer more options for patients would be very helpful.

Disclosures

Dr Beste has no relevant conflicts of interest to disclose.

Suggested Reading

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