Goshen Physicians
GASTROENTEROLOGY

Screening for NAFLD: How to know when it's critical

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This content is a summary of a presentation given by **Ross Heil, DO**, in December 2022. To view the presentation, go to www.youtube.com/watch?v=20eVOgSVt4Q. The last two slides (Slides 13 and 14) show treatment recommendations based on a patient's risk factors.

Describing NAFLD (Nonalcoholic Fatty Liver Disease) as a serious problem in contemporary healthcare is a profound understatement. It is instructive to consider that 37 percent of the general adult population has NAFLD, including 70 percent of patients with diabetes. And like many health issues, these numbers are rising due to the obesity pandemic that is prevalent throughout the world and especially so in the U.S. and here in Indiana.

The problem is, in most cases, NAFLD presents with no symptoms. So, it is typically detected when tests are performed for other reasons. And there is a high cost to be paid for not identifying NAFLD as it can include NASH (nonalcoholic steatohepatitis, a progressive form of NAFLD) and ultimately cirrhosis. At that point, the liver is seriously damaged and leads to a loss of quality of life and may lead to the need of liver transplant or death.

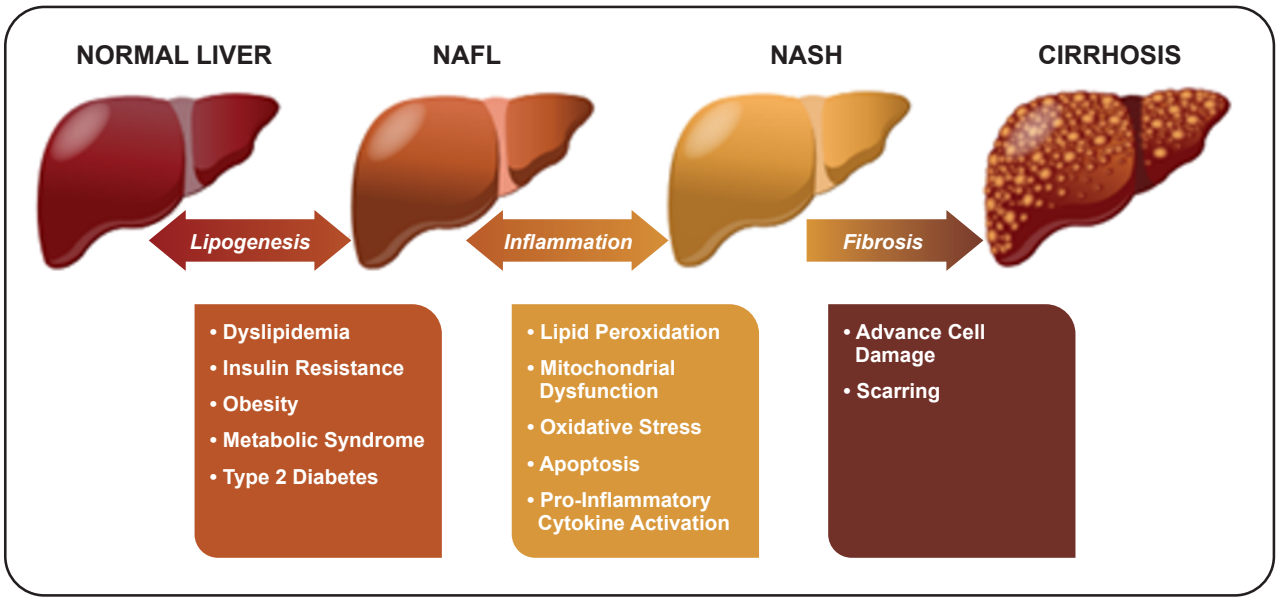
Cirrhosis comes with a devastatingly high cost

Advanced liver disease is the fourth leading cause of death among persons aged 45 to 64 and is inherently associated with very high hospital admission and readmission rates. According to a study in JAMA, the hospitalization costs for such care was in excess of $80 billion over a four-year period.

That's the bad news. But here is the good news: when we are able to catch liver disease early, we can start interventions to prevent decomposition. Once someone has ascites, confusion due to liver disease or a variceal bleed, they are decompensated. Around 2019, a major study (PREDESCI published in The Lancet) demonstrated that starting non-selective beta blockers and especially carvedilol early can prevent decompensation and decrease the need for hospitalization when started at the right time in the correct patient.

Catching liver disease early is a big "if"

As I noted previously, NAFLD seldom presents symptoms. Before I address ways to catch liver disease early, it is essential that we all understand the progression of liver disease. The chart on page 2 is a great illustration and explanation of the process. In this chart, NAFLD (non-alcoholic liver disease) is a broad term that relates to both NAFL (only fat in the liver with minimal inflammation) and NASH (fat in the liver with significant inflammation is the progressive form). Given life is dynamic, people can go in and out of NAFL and NASH depending on their metabolism at that moment. NAFLD doesn't specifically define whether a patient simply has fatty liver without inflammation (NAFL) as opposed to an inflamed fatty liver condition (NASH). Unfortunately, it is difficult to determine if a patient has NASH without a liver biopsy.



Progression of NAFLD. NAFL can progress to NASH and potentially cirrhosis. Each stage is defined by specific risk factors and/or pathological mechanisms. Both NAFL and NASH are thought to be reversible.

About a five percent change in the liver is necessary to make a diagnosis of NAFLD, and about 30 percent for the fatty liver to show up on an ultrasound or MRI. Within that window, we have a gray area where one might legitimately suspect elevated liver chemistries are from NAFLD after blood work was inconclusive for other culprits of elevated liver enzymes. For example, you might order a serologic workup or ultrasound and the results are negative. In that case, it is still possible the patient has NAFLD. It's just not being picked up because there's not yet enough fatty liver change for a positive imaging test result.

Liver biopsy or fibrous scan?

When elevated liver chemistries are suspected but not confirmed, a liver biopsy could well be useful. But so would a FibroScan. Before we initiate either of these steps, however, it is useful to identify whether a patient should be considered high risk or low risk. That could determine potential treatment decisions ranging from lifestyle interventions to more aggressive options such as bariatric surgery and medications. We also need to consider factors beyond metabolic causes. Alcohol consumption is one. If a male patient consumes less than 21 drinks a week, or a female patient consumes less than 14 drinks a week, then NAFLD is still considered. Just to be clear in NAFLD, no amount of alcohol is safe even if it is within these parameters. Even low alcohol intake with NAFLD has been shown to progress NAFLD faster than without any alcohol.

Other factors can come into play in a presentation of fatty liver disease in addition to alcohol. One is as common as hepatitis C. Certain medications like methotrexate, amiodarone, tamoxifen and prednisone are also common causes of liver disease and fatty liver. In addition, there are more rare factors such as genetic metabolic issues like Wilson and others.

Obesity as a risk factor

Generally, NAFLD is thought of in overweight or obese individuals. However, there is lean fatty liver when a patient's BMI is less than 25. The recommendations for lean fatty liver are essentially the same as those for obese patients but applied on a smaller scale.

While cirrhosis is the fourth leading cause of death, the role of fatty liver's impact on other significant causes of death such cardiovascular and cancer is undeniable. Patients with advanced fibrosis are at much greater risk for serious cardiovascular issues. The same goes for certain malignancies such as colon cancer.

Cirrhosis is a devastating ailment

So how do we look at fibrosis? What are some of the clues that might help prevent liver disease progression? One key marker could be a flip in the patient's lab results. If the patient's ALT was higher than the AST historically and now the AST is higher, it could be an indicator of cirrhosis. If a patient develops thrombocytopenia, there are several possible causes, but splenomegaly from cirrhosis is common. When labs show elevated liver chemistries or fatty liver and thrombocytopenia, there is reason for concern.

Imaging can also provide valuable clues. Is the caudate lobe a little larger than the right lobe? Perhaps there is some nodularity? Be attentive to these observations, but don't be fooled because nodularity can often be seen in nodular regenerative hyperplasia. So not all nodular livers are necessarily cirrhosis, but they do warrant consideration and everything must be interpreted in the correct clinical context.

Screening recommendations are evolving

In 2017, AASLD guidelines did not recommend screening for fatty liver due to uncertainty of cost benefit. That was over five years ago, and now further studies have clarified there is reason to screen certain populations. The prevailing thought now is that screening is warranted if a patient has diabetes, indications through imaging of fatty liver presence, or two or more metabolic risk factors. It's critically important to look at scar tissue on the liver because that triggers everything from cancer risk, decompensation risk, need for liver transplantation, mortality risk and cardiac risk.

The risk for liver cancer – especially in cirrhosis – is elevated. Once a patient has been identified as at risk for NAFLD, there are a number of ways to look at scar tissue non-invasively. A FibroScan is one. Another is FIB-4, a calculation base on the AST/ALT platelet count in the patient's age group. This can be plugged into a formula that provides a numeric assessment.

The challenge with FIB-4 is that when a patient's age is under 35, the test can under-diagnose advanced fibrosis. Conversely, fibrosis can sometimes be overestimated for patients over 65. For patients over the age of 65, the ranges in the FIB4 need to be changed.

Another very reliable tool is the FibroScan

In my opinion, the FibroScan is the most beneficial of all the available tests. It is relatively inexpensive (about $80) and provides the most relevant information. It offers input about the metrics we can follow over time and helps assess how the patient is progressing – positively or negatively. Unfortunately, there is no screening code for the FibroScan so if the patient doesn't have elevated liver chemistries or abnormal imaging, it may be necessary to rely on a FIB-4 which can be ordered through Quest or manually calculated by a simple formula and covered by insurance.

If there is concern for indeterminate results or risk of advanced fibrosis based on the FibroScan, the next step would likely be a liver biopsy because the various non-invasive tests, even the FibroScan, are not specific for advanced fibrosis. They are very sensitive in ruling out advanced fibrosis, but other factors such as intake of food, fluid on the liver, or significant inflammation in the liver can yield results that would appear consistent with advanced fibrosis. A liver biopsy is the imperfect gold standard for assessment of hepatic fibrosis.

To find out more about treatment recommendations based on risk factors, you can check out the last two slides of this presentation at www.youtube.com/watch?v=2OeV0gSVt4Q. If you have questions, all of us on the Goshen Physicians gastroenterology team are available to provide answers and consultation as needed.

Ross A. Heil, DO, *is a gastroenterologist who uses the latest therapies and newest technologies to treat upper and lower gastrointestinal structural and functional issues.*

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This publication is for healthcare providers

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~ Ross Heil, DO

TO REFER A PATIENT

To refer a patient, fax a referral form to (574) 533-7145. A referral form can be downloaded at GoshenQuickGuide.com.
Call for an appointment at (574) 537-1625.
We make every effort to see referrals the same day or within 24 hours as needed.