

Fat accumulation in the liver can affect the heart in otherwise healthy adults

January 15 2020, by Jasbir Makker

Obesity. Credit: Jasbir Makker

Nonalcoholic fatty liver disease (NAFLD) often develops silently without any symptoms. It is usually detected incidentally on a routine abdominal exam like ultrasounds or similar tests administered for unrelated reasons. It may have life-threatening consequences if not controlled in a timely manner. Unfortunately, many people around the globe have never even heard of the disease.

Nonalcoholic fatty liver disease, as the name suggests, results from buildup of extra fat in liver cells, and is not caused by alcohol consumption. According to American Liver Foundation, about 100 million individuals in the United States are estimated to have nonalcoholic fatty liver disease. This condition commonly occurs in individuals who are obese, that is, those who carry more weight than what is considered to be healthy for a given height. Rates of obesity are rapidly rising worldwide. According to the Centers for Disease Control and Prevention (CDC) in United States, about 40 percent of adults and 20 percent of adolescents are obese. Obesity is the most common risk factor for developing nonalcoholic fatty liver disease.

NAFLD can cause the same damage to the liver as that caused by drinking one bottle of hard liquor daily. It can lead to scarring of the liver, also known as cirrhosis. Cirrhosis and its complications, including liver cancer, are fatal, and almost always lead to death unless the patient undergoes a liver transplant. Researchers have already noticed nonalcoholic fatty liver disease as the leading cause of liver transplantation in women. Soon, it will be the leading cause among men, as well.

People with nonalcoholic fatty liver disease frequently have metabolic syndrome, a cluster of conditions including high blood pressure, high blood sugar, abnormally high levels of cholesterol, and excessive body fat, especially around the waist region.

Nonalcoholic fatty liver disease is frequently associated with metabolic syndrome, and this relationship is bidirectional. This means that people who have metabolic syndrome may develop fatty liver, and vice-versa: People who have fatty liver may eventually develop metabolic syndrome. It is believed that these diseases occur together due to shared risk factors of unhealthy eating and lack of exercise. Individuals with metabolic syndrome have a significantly higher risk of heart attack in the future.

Although the presence of fatty liver predisposes people for development of metabolic syndrome and hence heightened risk of heart attacks, it is unknown whether fatty liver disease without any evidence of metabolic syndrome can affect heart. In other words, it is not known if the presence of fat in the liver in an otherwise healthy adult (without any presence of high blood sugar, high blood pressure or high blood cholesterol levels) can affect the heart.

Is fat accumulation in liver really dangerous for your overall health?

To explore this question, my colleagues and I conducted a study on patients who only had nonalcoholic fatty liver disease. For comparison, we also assembled three more groups: healthy adults, adults with metabolic syndrome, and a group of adults with metabolic syndrome as well as fatty liver. Then, I compared the results of echocardiograms on all these study participants.

I found significant changes in the heart as evidenced on echocardiogram in the adults with metabolic syndrome. These findings are not new, and similar results have been seen previously by other researchers, as well. However, to my surprise, I also found that participants with nonalcoholic fatty liver disease only also had some significant changes in their heart on their echocardiograms. I want to emphasize here that these adults who were found to have abnormalities on their echocardiograms are apparently healthy and only suffer from obesity and nonalcoholic fatty liver disease. They had no sign of high blood sugar, high blood pressure or high cholesterol levels that can commonly cause such echocardiogram changes.

What can be done next?

In my opinion, adults with nonalcoholic fatty liver disease should have an echocardiogram to check if they have experienced changes in their hearts. These heart changes predispose patients to future heart attacks and death. This screening strategy can identify such adults at risk of heart problems. Testing will make people aware of this silent disease, which otherwise does not cause any discomfort or other problems early on.

In conclusion, nonalcoholic fatty liver disease results from physical inactivity and unhealthy eating. It is a rapidly spreading public health crisis. It can lead to dangerous consequences like heart problems. Unfortunately, it may go unnoticed for years. It is important to make physicians and the community aware of the damaging consequences of nonalcoholic fatty liver disease and the importance of catching it early. Increased physician knowledge and patient awareness can halt the progression of this deadly crisis.

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More information: Makker J, et al. Preclinical cardiac disease in nonalcoholic fatty liver disease with and without metabolic syndrome. *Am J Cardiovasc Dis.* 2019 Oct 15;9(5):65-77. eCollection 2019. PubMed PMID: 31763058; PubMed Central PMCID: PMC6872463. www.ncbi.nlm.nih.gov/pmc/articles/PMC6872463/

Bio:

My name is Jasbir Makker. I am a practicing gastroenterologist at Bronx Care Health System, New York, academic affiliate of ICAHN School of Medicine. I have special interest in the research field of fatty liver. I have extensively published my work related to several gastrointestinal

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