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The full report is titled “The Metabolic Syndrome as a Predictor of Nonalcoholic Fatty Liver Disease.” It is in the 15 November 2005 issue of *Annals of Internal Medicine* (volume 143, pages 722-728). The authors are M. Hamaguchi, T. Kojima, N. Takeda, T. Nakagawa, H. Taniguchi, K. Fujii, T. Omatsu, T. Nakajima, H. Sarui, M. Shimazaki, T. Kato, J. Okuda, and K. Ida.

The Metabolic Syndrome and Fatty Liver Disease

What is the problem and what is known about it so far?

The metabolic syndrome is a condition in which people have at least 3 of the following abnormalities: overweight, high blood pressure, high triglyceride levels (a bad type of fat in the blood), low high-density lipoprotein cholesterol levels (“good” cholesterol), and high blood sugar levels. People with the metabolic syndrome are at risk for type 2 diabetes and cardiovascular disease, including heart attack and stroke. Nonalcoholic fatty liver disease is a condition where fat deposits in the liver. Alcohol use also leads to fatty deposits in the liver, which is why nonalcoholic fatty liver disease specifically refers to fatty liver in people who do not consume alcohol. Nonalcoholic fatty liver disease is generally not a serious condition and rarely leads to more serious liver problems, but it can interfere with normal liver function. Previous studies have shown associations of some of the individual features of metabolic syndrome with nonalcoholic fatty liver disease; however, they have not looked at what happens to the liver over time in people with the metabolic syndrome.

Why did the researchers do this particular study?

To examine the association of the metabolic syndrome with nonalcoholic fatty liver disease over time.

Who was studied?

4401 healthy Japanese adults who were participating in a medical checkup program at a general hospital in Japan.

How was the study done?

As part of the checkup program, the participants completed yearly questionnaires about their health, had blood tests for liver and metabolic function, and had ultrasonographic examinations of their abdomens. Ultrasonography can identify fatty deposits in the liver.

What did the researchers find?

Of the 4401 patients in the study, 812 (18%) had nonalcoholic fatty liver disease at the start of the study. This disease was more common in persons with the metabolic syndrome than in persons who did not have the metabolic syndrome. Over the course of the study, 308 participants developed nonalcoholic fatty liver disease. In addition, 113 participants who had the disease at the start of the study did not have it at the end of the study. Participants who had the metabolic syndrome were more likely than those who did not have it to develop nonalcoholic fatty liver disease over time. Nonalcoholic fatty liver disease was less likely to resolve over the course of the study if the participants had the metabolic syndrome than if they did not.

What were the limitations of the study?

The study included only Japanese participants and may not apply to people with other ethnic backgrounds. Ultrasonography is not the best way to identify nonalcoholic fatty liver disease.

What are the implications of the study?

Nonalcoholic fatty liver disease is another health problem associated with the metabolic syndrome. This study suggests that reversing the metabolic syndrome may reverse the disease. However, additional studies are needed to prove that this is true.

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