

Fat around the heart may cause irregular heartbeat

November 17 2014

Obesity is a known risk factor for atrial fibrillation, the most common heart rhythm disorder.

Obesity is commonly measured as a person's [body mass index](#) (BMI). But a Loyola University Medical Center study has found that the layer of fat around the outside of the [heart](#) is more closely associated with [atrial fibrillation](#) than BMI.

"Many people who would not be considered obese by their BMI nevertheless have high volumes of fat around their hearts, which could put them at risk for atrial fibrillation. Simple measures such as BMI may fail to completely inform us of a patient's true [cardiovascular risk](#)," said Mark Rabbat, MD, first author of the study and an assistant professor of medicine and radiology, Division of Cardiology, at Loyola University Medical Center.

Dr. Rabbat presented the intriguing findings Nov. 17 at the American Heart Association 2014 Scientific Sessions in Chicago.

The study found a statistically significant correlation between the fat layer and scarring in the [left atrium](#) that causes atrial fibrillation. By contrast, there was not a statistically significant correlation between BMI and scarring in the left atrium. (The left atrium is one of the four chambers of the heart.)

Atrial fibrillation, or a-fib, occurs when the atria (upper chambers of the

heart) fibrillate (contract very fast and irregularly). A-fib is thought to be caused by inflammation and scarring ([fibrosis](#)) in the left atrium.

The fat layer around the outside of the heart is called epicardial adipose tissue (EAT). New innovations in cardiac magnetic resonance imaging enable physicians to precisely measure both EAT volume and the amount of fibrosis in the left atrium. "Our study is the first of its kind to demonstrate the association of EAT and the extent of left atrial fibrosis in patients with a-fib," Dr. Rabbat said.

The study included 54 patients who had a-fib. The average amount of fat around the heart (EAT volume) was 120 cubic centimeters. There was a statistically significant correlation of 0.45 between EAT volume and fibrosis. By comparison, there was only a 0.30 correlation between BMI and fibrosis - and this lower correlation was not statistically significant.

"Further studies are being planned by our group to clarify the association between EAT and a-fib and the interplay with other a-fib risk factors," said Mushabbar Syed, MD, Loyola's medical director of cardiovascular imaging and a co-author of the study.

For many years, EAT was believed to be harmless, inert fat tissue. But it now appears that EAT is a metabolically active organ, releasing proteins that may trigger the fibrosis that causes a-fib.

Weight loss, either through diet and exercise or through weight-loss surgery, has been shown to reduce the amount of EAT. But current medical treatments fail to specifically target EAT.

"Fat tissue around the heart may be a novel target to reduce the risk of a-fib and its recurrence," Dr. Rabbat said.

The study is titled "Epicardial adipose tissue volume predicts extent of

left atrial fibrosis in patients with atrial fibrillation."

Provided by Loyola University Health System

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