

Fat around the heart may increase risk of heart attacks

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When it comes to risk for a heart attack, having excess fat around the heart may be worse than having a high body mass index or a thick waist, according to researchers from Wake Forest University Baptist Medical Center and colleagues reporting in the August issue of the journal *Obesity*.

The study was among the first to explore whether there is a link between fat deposits around the heart, known as pericardial fat, and the development of hard, calcified plaque in the arteries. Calcified plaque itself is not considered risky, but it is associated with the presence of less stable fatty deposits that can lead to heart attack and stroke.

"The distribution of body fat may be as important as the amount of body fat in determining risk of heart attacks," said Jingzhong Ding, M.D., lead author and an assistant professor of gerontology. "Even a thin person can have fat around the heart."

The researchers examined data from the Multi-ethnic Study of Atherosclerosis (MESA), a \$68 million study involving 6,800 participants nationwide, to explore their hypothesis that fat around the arteries in the heart contributes to inflammation and to increased risk of fatty deposits in the vessels.

In addition to its role as energy storage, fat is considered to be an "organ" that produces proteins and hormones that affect metabolism and health. Ding's study is based on a new idea in medicine – that excess fat

around the heart and other organs may impair their function. Pericardial fat, or stores of fat around the heart, is known to have a higher secretion of inflammatory cytokines, proteins that regulate inflammation, than fat stored just under the skin. The scientists suspect that constant exposure of inflammatory proteins produced by fat around the heart may accelerate the development of atherosclerosis.

For the analysis, the researchers measured the volume of pericardial fat in 159 study participants who were 55 to 74 years old. Calcified coronary plaque was observed in 58 percent of participants. Participants were divided into four groups based on the volume of pericardial fat. Those in the group with the highest levels of fat were almost five times (4.65) more likely to have calcified coronary plaque.

The scientists found that while the volume of pericardial fat was related to levels of calcified coronary plaque, body mass index and waist circumference were not related.

"Our findings suggest that local fat deposits, rather than total body fat, are most related to calcified coronary plaque," said Ding. "Inflammatory mediators released from pericardial fat may promote inflammation in local coronary arteries and lead to coronary atherosclerosis."

Ding hopes to continue the research to learn more about whether the buildup of fat around the heart can be prevented.

"Because coronary heart disease kills so many people, it is imperative to find new treatments and prevention strategies," he said.

Source: Wake Forest University Baptist Medical Center

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