

Epicardial Fat Might Point to Cardiovascular Risks

BY FRAN LOWRY
Orlando Bureau

NEW ORLEANS — The fat that surrounds the heart is associated with cardiac abnormalities, including low stroke volume and cardiac output, that are independent of body mass index, a study has found.

The finding casts doubt on the widespread practice of using body mass index (BMI) as an indicator of cardiovascular dis-

ease risk, Dr. Zhongjing Chen, of Boston University, said at the annual meeting of NAASO, the Obesity Society.

Dr. Chen and colleagues assessed 13 obese women with metabolic syndrome—but no recognized atherosclerosis—using magnetic resonance imaging. The patients' average age was 47 years (range 30-59).

The women had a mean BMI of 30 kg/m² or greater, and they also had at least three features of metabolic syndrome. These included hypertension,

dyslipidemia, central obesity, and insulin resistance.

"The limit for weight was 275 pounds, and for waist circumference 50 inches, because of the table weight and size limits of our scanner," Dr. Chen said.

The researchers used special software that had been developed by Boston University's Center for Biomedical Imaging to calculate epicardial and periaortic fat and they then analyzed stroke volume, end diastolic wall mass, and ejection frac-

tion, as well as flow volume and peak blood velocity.

Both stroke volume and cardiac output were negatively correlated with epicardial and periaortic fat, and this negative correlation was statistically significant. Ascending aorta compliance also worsened in the presence of epicardial and periaortic fat.

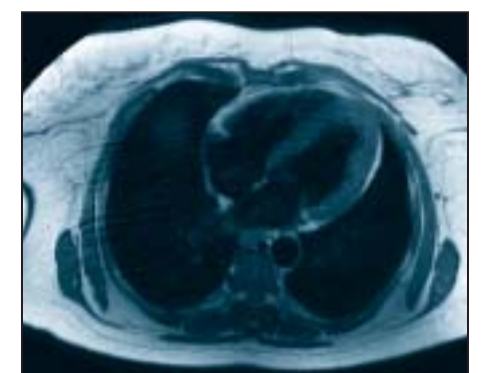
However, there were no correlations between stroke volume, cardiac output, or ascending aorta compliance and the subjects' BMI, Dr. Chen said.

"The major morbidities that are associated with metabolic syndrome and stroke and myocardial infarction. People have been correlating body mass index with these risks, but our results indicate that it's the fat stores around the heart that are important risk factors," she said in an interview.

Dr. Chen added that MRI is noninvasive and therefore provides an excellent way of measuring epicardial fat and cardiovascular disease risk.

"Epicardial and periaortic fat can be directly detected and quantified with MRI to give us a good reading of cardiac function and vessel wall properties. We would like to see whether reducing those fat deposits is associated with improvements in cardiac or vascular function," she said.

Dr. Chen added that more studies would be needed to address that question. ■



In this MRI, solid white areas around the heart and aorta show epicardial fat in a woman with a BMI of 44 kg/m².



This woman, with a BMI of 34, has notably more epicardial and periaortic fat than the woman with the higher BMI.

PHOTOS COURTESY DR. ZHONGJING CHEN



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