CT depicts racial differences in coronary artery disease

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While obesity is considered a cardiovascular risk factor, a study presented today at the annual meeting of the Radiological Society of North America (RSNA) showed that African-American patients with coronary artery disease (CAD) have much less fat around their hearts compared to Caucasian patients.

"Prior evidence suggests that increased fat around the heart may be either an independent marker of CAD burden or a predictor of the future risk of acute coronary events," said U. Joseph Schoepf, M.D., professor of radiology and medicine and director of cardiovascular imaging at the Medical University of South Carolina in Charleston, S.C. "You would think that African Americans, who have a higher prevalence of CAD, would have higher rates of thoracic fat in an acute chest pain setting. However, this was not the case. White patients had significantly higher thoracic fat volumes than African-American patients."

According to the Centers for Disease Control and Prevention, coronary heart disease is the leading cause of death for people of most ethnicities in the United States. In 2010, the age-adjusted prevalence of coronary heart disease was 6.5 percent among African Americans, compared to 5.8 percent among Caucasians.

"We were very interested in finding an explanation for the racial difference in CAD and suspected differences in thoracic adipose tissue between races might be one of the contributing factors," said Paul Apfaltrer, M.D., from the Institute of Clinical Radiology and Nuclear

Medicine, University Medical Center Mannheim, Heidelberg University, Germany.

For the study, researchers evaluated cardiac dual-source CT images of 411 age- and gender-matched African-American and Caucasian patients, quantifying thoracic fat volumes, including epicardial adipose tissue (EAT)—body fat that is in direct contact with the heart—and mediastinal adipose tissue, which is body fat within the chest cavity. Results showed that while the prevalence of significant stenosis, or narrowing of the coronary ducts, and plaque was similar in African-American and Caucasian patients, African-American patients had less fat around their hearts.

The findings, Drs. Schoepf and Apfaltrer say, are surprising, given the higher number of cardiac and metabolic disorders among African Americans despite presence of less fat in the chest cavity. The researchers suggest that EAT may actually act as a protective buffer, or that it may be related to plaque maturation including calcification, and could contribute to lower risk of acute coronary events.

"Understanding the mechanism behind the racial disparities we found may improve the prevention, risk stratification and management of CAD," Dr. Schoepf said.

Provided by Radiological Society of North America