

Physiologic factors linked to image quality of multidetector computed tomography scans

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A large multicenter international trial found that the image quality of multi-detector computed tomography (MDCT) scans, used for the noninvasive detection of coronary artery disease, can be significantly affected by patient characteristics such as ethnicity, body mass index (BMI), and heart rate, according to a study in the January issue of the *American Journal of Roentgenology*.

The large multicenter international trial study included 291 patients with coronary artery calcification and found that compared with examinations of white patients, studies of black patients had significantly poorer image quality.

"Physiologic factors such as high heart rate, arrhythmia, [obesity](#), and high coronary calcium burden with motion continue to limit the diagnostic accuracy of MDCT as compared with conventional invasive coronary angiography. Our study is significant because we found a relevant influence of BMI, heart rate, ethnicity, and breathing artifact on the [degradation](#) of image quality," said Melvin E. Clouse, MD, lead author of the study.

MDCT scans have been implemented in a variety of patients with suspected coronary artery disease because of its diagnostic accuracy and reliability. However "the diagnostic ability of any imaging method is directly dependent on image quality," said Clouse.

"With this new knowledge combined with new and advanced CT

scanners, we have the potential to improve image quality of coronary CT angiography, further making the test even more accurate and independent of patient characteristics," he said.

Provided by American Roentgen Ray Society

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