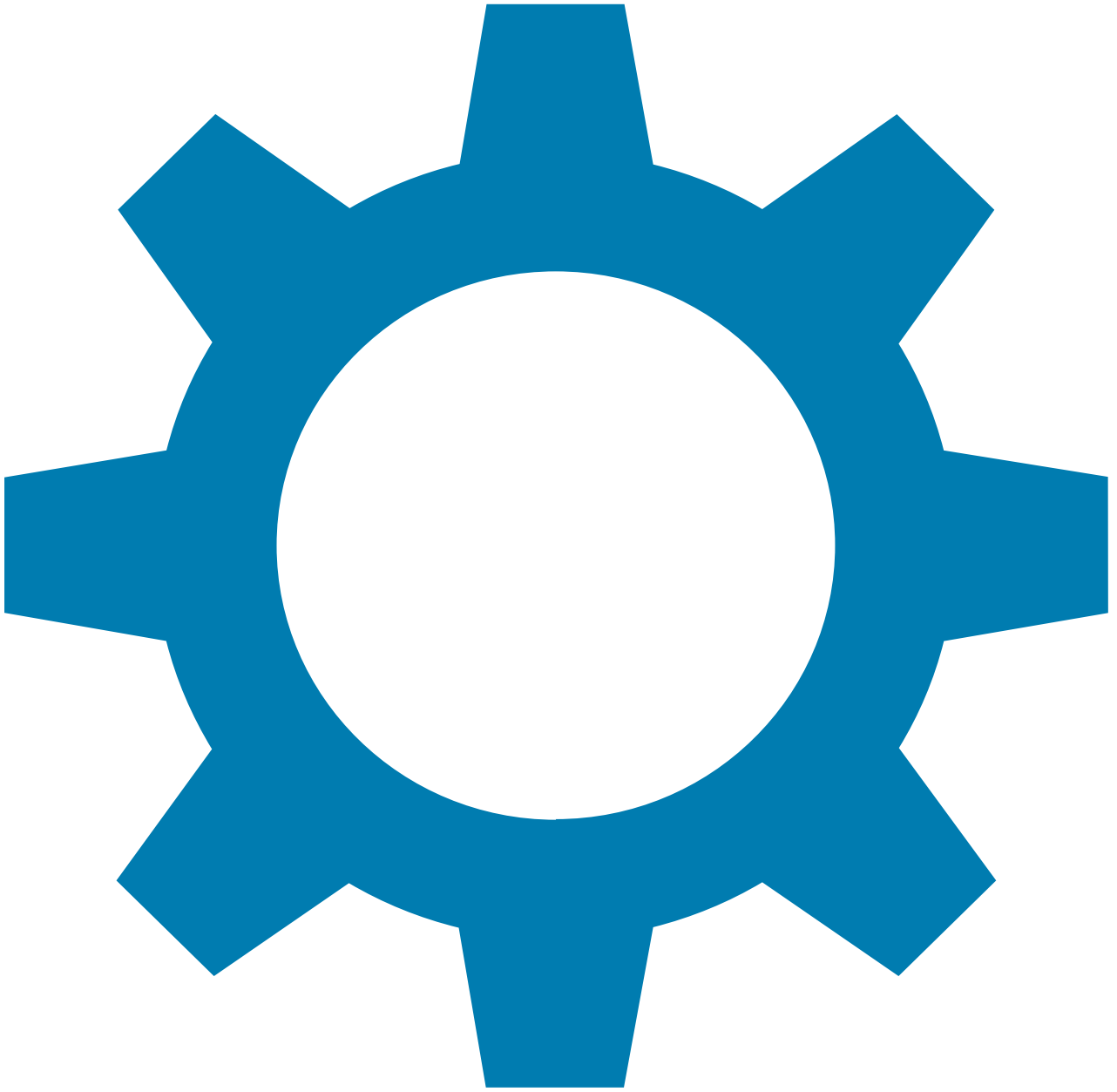


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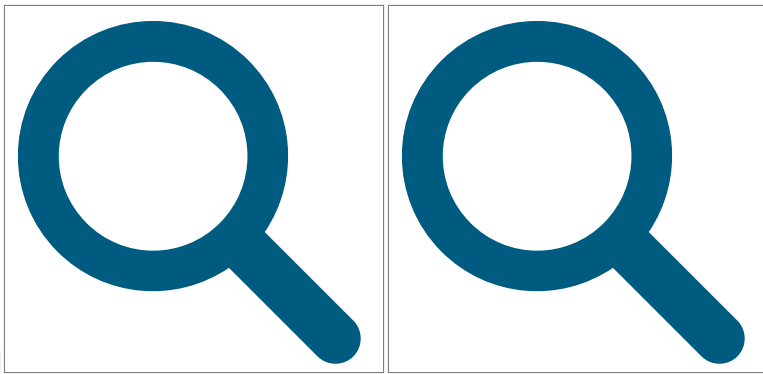


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Arrhythmia, Obesity Predict Higher Radiation in Coronary CTA

Marlene Busko

July 11, 2017

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WASHINGTON, DC — Among patients who had coronary computed-tomography angiography (CTA), those who were obese or had arrhythmia during imaging had about a 10- or 20-fold increased risk, respectively, of receiving a higher-than-the-median radiation dose, in a single-center study^[1].

The risk of getting a higher-than-usual radiation dose was also increased, but to a lesser extent, in patients who were male, older, had a high heart rate during the test, or were being evaluated for a heart valve or graft patency after CABG.

Obese patients or those with arrhythmia during coronary CTA are exposed to radiation for a longer time or over a larger body surface area, and "now we know for sure" that, at least in this study, they received more-than-average radiation, Dr Andrea Knab (Penn State Health, Hershey, and formerly at the National Heart, Lung, and Blood Institute [NHLBI], Bethesda, MD) told [theheart.org](#)|Medscape Cardiology.

At the same time, it was "reassuring" that women, younger patients, and patients who had a coronary CTA scan to look for CAD alone (the most common indication for the test) or those with congenital heart disease (who had multiple scans) were much less likely to receive radiation doses above the

median, she noted at a poster session here at the [Society of Cardiovascular Computed Tomography \(SCCT\) 2017 Annual Scientific Meeting](#).

"This study was focusing on risk factors that are predictive of high radiation dose from cardiac CT from a large series of patients using a single scanner model, and it points out some factors that are associated with a higher radiation dose," session moderator Dr Andrew J Einstein (Columbia University, NY) commented.

"It remains to be seen whether there are patient-specific factors that can be modified to reduce radiation to patients," he cautioned, "but this provides us with some intriguing data that we can use for further analyses to see how this knowledge can be used to lower radiation dose to patients."

CTA Indications, Radiation Dose

Little is known about how patient characteristics or the indication for a coronary CTA exam might affect the radiation dose a patient receives, according to Knab and colleagues.

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To study this, they analyzed data from 3137 consecutive ECG-gated coronary CTA exams that were performed in their center from 1999 to 2015, using a 320-detector-row scanner (Aquilon ONE, Toshiba).

The patients had a mean age of 55; 54% were 55 or older; and slightly more than half were men (57%). They were ethnically diverse: white (66%), African American (15%), Asian (12%), or Hispanic (7%). Overall, the patients had a high mean BMI (29 kg/m²) and 36% were obese (BMI ≥30 kg/m²).

The main indication for the coronary CTA exam was for CAD alone (80%). Indications for the remaining cases were: CAD plus either congenital heart disease (6%), graft patency after CABG (3%), stent patency after PCI (5%), cardiac mass (4%), cardiac function (<1%), aorta assessment (<1%) or valve-function assessment (4%), with some patients classed in multiple categories.

1 2

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