

Coronary CTA costs less than standard of care for triaging women with acute chest pain

August 8 2008

Non-invasive coronary CT angiography (CTA) is more cost-effective than current tests for diagnosing women with low risk of a heart attack who come to the emergency room with acute chest pain, according to a recent study conducted by researchers at Harvard University in Cambridge, MA.

The researchers developed a microsimulation coronary CTA model which reviewed costs and health effects of performing coronary CT angiography and either discharging, stress testing, or referring emergency department patients for invasive coronary angiography, depending on their severity of atherosclerosis, compared with a standard-of-care (SOC) algorithm that based management on biomarkers and stress tests alone. "The SOC is to get a few sets of cardiac enzymes on these patients and to perform a stress test. If either is positive, the patient may be considered for cardiac catheterization," said Joseph Ladapo, MD, PhD lead author of the study.

Coronary CT angiography was \$410 less (in emergency department and hospital costs) than the SOC to triage a 55-year-old woman, said Dr. Ladapo. Total health care costs decreased by \$380, he said. "At nearly every age level, women are less likely to have coronary artery disease than men; they are more likely to be found to have normal coronaries on cardiac CT, and therefore more likely to be discharged. Since they are discharged, costs go down," Dr. Ladapo said.

55-year-old men with acute chest pain increased emergency department

and hospital costs by \$110 and raised total health care costs by \$200, Dr. Ladapo said. Coronary CT angiography raised overall costs in men primarily because it was more likely to identify patients with coronary artery disease, Dr. Ladapo said. The patients needed additional testing or treatment, so costs went up.

"Coronary CT angiography with high-resolution CT scanners is an exciting innovation whose implications for health outcomes and medical care costs are poorly understood," said Dr. Ladapo. "I think our study brings us closer to understanding how patient care might be affected by its application and reinforcing the role of this technology in patient care," said Dr. Ladapo.

"I think the day may come when this technology is regularly used to triage patients that would otherwise end up waiting for hours in the emergency department for a stress test and another set of cardiac enzymes. As physicians design protocols that further reduce the radiation dose associated with exams, and as engineers design faster multislice CTs, the radiation dose (the main major risk of the procedure) will fall," said Dr. Ladapo. "Indeed, it has already fallen significantly for these reasons," he said. "Coronary CT angiography is more efficient than a stress test in the identification of coronary artery disease," he added.

Source: American Roentgen Ray Society

Citation: Coronary CTA costs less than standard of care for triaging women with acute chest pain (2008, August 8) retrieved 7 May 2024 from <https://medicalxpress.com/news/2008-08-coronary-cta-standard-triaging-women.html>

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