

# Self-Rated Health Predictive in Women

BY SUSAN LONDON

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SEATTLE — Women undergoing angiography who rated their health as fair or poor had twice the risk of cardiovascular events and death, compared with women who rated their health as

disease severity score (assessed from angiography), and demographic factors (age, education, and race).

They also collected dimensions related to the subjective experience of symptoms: mental health treatment (assessed from self-reported current use of antidepressants and anxiolytics), cardiac symptoms, and functional capacity (assessed with the Duke Activity Status Index [DASI]).

The 900 women with complete data had a median follow-up of 5.9 years, according to Dr. Rutledge, associate professor in resi-

dence at the University of California, San Diego.

They were an average age of 60 years, and 17% were of minority races/ethnicities. Most (80%) had at least a high school education. About 40% had significant coronary artery disease, defined as the presence of stenosis of at least 50% on angiography.

Overall, 10% of the women rated their health as poor, 29% as fair, 35% as good, 19% as very good, and 6% as excellent.

The combined rate of CVD events (myocardial infarction, stroke, heart failure) and death for these groups was 39%, 24%, 21%, 11%, and 8%, respectively.

With the exception of coronary artery disease severity score, all of the objective and subjective measures studied varied significantly across the five categories of self-rated health.

After adjustment for demographic and CVD risk factors, women with fair self-rated health had a 2.0-fold increased risk of CVD events and death and women with poor self-rated health had a 2.1-fold increased risk compared with their counterparts who had very good or excellent self-rated health combined.

The findings were essentially the same after additional adjustment for use of antidepressants or anxiolytics, or for cardiac symptoms. In contrast, the associations were no longer significant after additional adjustment for functional status, as assessed with DASI scores.

Self-rated health seems to capture more than is typically measured during an office visit and it can be easily assessed with a single question, Dr. Rutledge said. ■

**VITALS** **Major Finding:** Women undergoing angiography who rated their health as fair or poor had twice the risk of CVD events and death as peers who rated their health as very good or excellent even after objective measures of health were taken into account.

**Data Source:** Observational study of 900 participants in the Women's Ischemia Syndrome Evaluation.

**Disclosures:** Dr. Rutledge reported that he had no conflicts of interest related to the study.

good or excellent, new data show.

Providers should be alert to the possibility of adverse events in such women, even when they appear relatively healthy by objective criteria, according to a study of 900 women undergoing coronary angiography in which nearly 4 in 10 self-rated their health as fair or poor.

This association appeared to be largely attributable to the women's functional capacity, assessed on a scale ranging from the ability to perform simple self-care tasks to the ability to participate in strenuous sports.

"In a clinical population ... we observed evidence that not only are poor and fair self-rated health strongly associated with clinical outcomes, but they are common," said lead investigator Thomas Rutledge, Ph.D. "This suggests that there is a large population of care-seeking patients out there for whom self-rated health is rarely assessed but is potentially quite important to understanding their actual healthiness."

He and his colleagues analyzed data from the Women's Ischemia Syndrome Evaluation (WISE), a multicenter study of women undergoing coronary angiography because of symptoms of myocardial ischemia.

At baseline, the women were asked to rate their health using a five-category classification: poor, fair, good, very good, or excellent.

Study investigators collected numerous objective measures of health: CVD risk factors (diabetes, body mass index, dyslipidemia, hypertension, current smoking status), coronary artery

## THE EFFECTIVE PHYSICIAN CT Angiography

BY WILLIAM E. GOLDEN, M.D., AND ROBERT H. HOPKINS, M.D.

### Background

CT coronary angiography represents a new technology without an evidence base to create formal practice guidelines. The American College of Cardiology and the American College of Radiology, among other organizations, have released an expert consensus assessment of the current literature to provide perspective on its use.

### Conclusions

Most clinical studies of CT angiography reflect experience at single institutions, which limit their generalizability.

CT angiography requires complex computer technology and algorithms as well as substantial operator experience and judgment to interpret image data. Pretest probability and patient history are essential elements in the interpretation of results.

CT angiography, much like conventional cath data, cannot predict potential rupture of nonobstructive coronary plaques. CT angiograms can identify noncalcified atheromatous plaques in asymptomatic patients; these lesions have uncertain prognostic value, with a limited literature suggesting a low risk for short-term cardiac events.

CT angiography can be useful to assess patency of coronary bypass grafts, but has limited value in assessing status of the native vessels because of calcification, surgical clips, and motion artifacts at the grafting site. Internal mammary artery grafts are more difficult to assess because of their smaller diameter.

Patients with metal coronary stents pose substantial technical challenges (artifacts). The best information is obtained when assessing large-diameter stents in patients with low to intermediate risk for obstruction. There are no comparative studies with conventional angiography.

Patients with atrial fibrillation are not good candidates for CT angiography because of elevated heart rate and inconsistency of rhythm. Continued development of 256-detector scanners might improve imagining for these patients in the future.

CT angiography currently has limited use for estimating progression of atherosclerosis and total burden of atheromas.

Radiation exposure from a single CT angiogram ranges from 5 to 30 mSv, with an average of 12 mSv. In comparison, chest x-rays expose patients to 0.1 mSv, conventional angiography to 7 mSv, percutaneous coronary intervention to 15 mSv, thallium stress/reinjection to 29 mSv, and thallium stress reinjection to 42 mSv.

CT angiography involves strategically timed boluses of fairly large doses of non-ionic contrast material.

A Canadian study estimated that CT angiography could reduce the incidence of normal invasive cardiac cath from 32% to 27%.

Left ventricular function is the best predictor of prognosis in patients with coronary artery disease. CT angiography can effectively measure ejection fractions if the heart rate is controlled to 55-65 beats per minute.

### Implementation

Adequate CT angiography requires 64-channel

multidetector technology at a minimum. Earlier CT scanners are adequate only for coronary calcium scores. The added value of higher-channel CT scanners is currently uncertain.

Effective imaging requires a slow heart rate. Patients routinely receive acute administration of beta-blockers to reduce the heart rate to 60 beats per minute prior to the study. Some operators use sublingual nitroglycerin to induce coronary artery vasodilatation during the scan.

Patients need to hold their breaths for 10-15 seconds to reduce motion artifacts during each scan. Practice sessions of the breath holding can improve quality of the studies.

There is no consensus to guide use of CT angiography in asymptomatic patients.

Very obese patients and patients with substantial coronary artery calcification are not appropriate candidates for CT angiography.

Negative CT angiograms can rule out significant obstructive coronary artery disease with a high degree of confidence.

Positive CT angiograms have less-certain diagnostic and prognostic value. The technology can detect hemodynamically insignificant coronary atherosclerosis, for which effective management is unknown.

CT angiography of emergency department patients with possible acute coronary syndromes might be able to reduce work-up time and total cost of the evaluation.

CT angiography should not supplant clinical evaluation in the "triple rule-out" work-up in the emergency department (acute aortic syndrome, acute coronary syndrome, and pulmonary embolism). Bedside assessment usually reduces the number of active diagnoses and avoids greater exposure to radiation and contrast material.

Traditional invasive cath imaging currently exceeds CT angiography in the aggregate in assessing graft patency, stenosis of grafts, status of anastomoses, and status of distal native arteries. Several quantitative elements derived from CT angiography are under consideration, but there are minimal data to validate the value of such data in patient care.

### Reference

A report from the American College of Cardiology Foundation Task Force on Expert Consensus Documents (J. Am. Coll. Cardiol. 2010;55:2663-99).



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