

Are you getting ... ALL the right HEART TESTS?

by Seth J. Baum, MD, FACC, FAHA

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Listen to the news: read the paper; converse with friends and family; simply live in the modern world and you will surely know that cardiovascular disease is the greatest killer of men and women. Forty percent of Americans die from cardiovascular disease, eleven times as many as those who succumb to breast cancer. In fact, in America 500,000 women die yearly from cardiovascular disease, more than cancer, accidents, and diabetes combined. And here's a statistic you may not be aware of – women consistently outnumber men when it comes to dying of cardiovascular disease.

In addition to the emotional loss caused by this Leviathan of ailments, there are grave financial consequences as well. In fact, the annual bill for treating this malady in the United States is an astounding four hundred billion dollars!

Imagine how much better off we would be if we could effectively combat heart disease.

We recognize how far medical science has advanced in the last several decades in the realm of heart disease. We now have easy access to bypass surgery, angioplasties, drug-coated Stents, defibrillators, and a host of medications designed to thin our blood, lower blood pressure and reduce our cholesterol. Yet, heart disease continues to beat us down. Somehow, with all these cutting-edge procedures and drugs in our armamentarium we physicians still fall short. Why have we failed to make a consequential dent in cardiovascular disease's final outcome, death? The answer, I believe, lies in the insufficiency of our focus on identification and prevention of heart disease in its formative stages. Although we possess great skill in managing heart disease once it has become manifest, we often fail to recognize it in its infancy. By doing so, we allow it to mature to a form that



ultimately and inevitably kills us. Fortunately, patients now have access to a novel method of identification and prevention of life-threatening heart disease.

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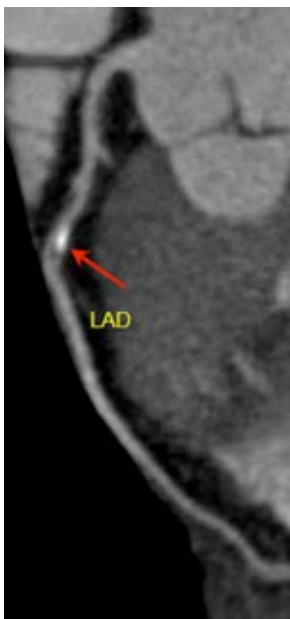
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Let's take a glimpse at the greatest advance in cardiology in the past decade, coronary CT angiography (CCTA).

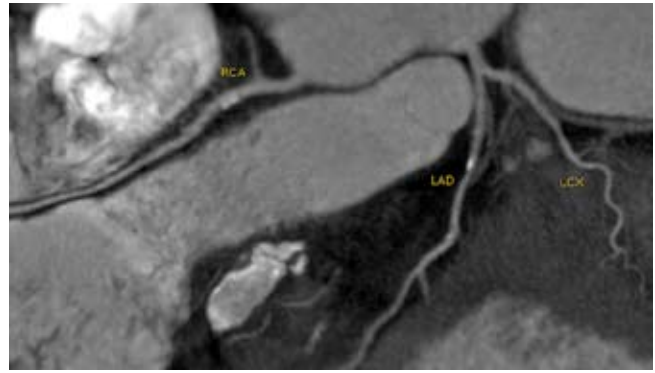
In order to depict the invaluable nature of CCTA most effectively, I will present the case of an actual patient, one whose life was favorably – and in her circumstance fortuitously – altered by undergoing this exam. Mrs. Wolf is a forty-year-old mother of two who works as a secretary in an outpatient-imaging center. When a new scanner was introduced at the imaging center, Mrs. Wolf volunteered to undergo a CCTA. This scanner's software is so advanced it exposes patients to only 2.8 mSv (a measure of radiation exposure) of radiation. To put that dose in perspective, a simple CT scan of the abdomen exposes patients to 10 mSv, or four times the amount delivered during this type of CCTA. We can see that the potential risk of such a scan is remarkably small. Getting back to our patient, Mrs. Wolf is physically fit, weighing just 139 pounds and standing five feet seven inches tall. Her waist circumference is twenty-nine inches and her BMI (Body Mass Index) is 21.8 (optimal is 20 to 25). She carries none of the classic cardiac risk factors such as hypertension, high cholesterol, diabetes, tobacco abuse, obesity, sedentary behavior, or a family history of premature coronary artery disease. She exercises

daily, sleeps well, and has never experienced any cardiovascular symptoms. Her ten-year Framingham risk is less than one percent, the lowest risk possible. There is absolutely no reason to suspect that this remarkably healthy and fit forty-year-old would have any coronary artery disease at all. And yet she did. Mrs. Wolf had non-obstructive disease in all three of the major arteries feeding her heart. (See images) What this means for her is that having already developed plaque in the walls of her coronary arteries, she is at risk for developing a heart attack and possibly even a stroke. She therefore needs to be treated far more aggressively than she would have been treated, had we not discovered the sleeping threat of atherosclerotic disease. My approach to Mrs. Wolf follows.

She already exercises daily, lifting light weights, stretching, and using the elliptical machine. Thus, exercise is not an area we can improve upon. Likewise, her diet is superb. She eats copious quantities of fruits and vegetables, limits her intake of simple sugars, and assiduously avoids saturated and trans-fats. Her cholesterol, though considered good for one without coronary artery disease will now have to be lowered a bit with a Statin. My goal is to keep her LDL-P (the number of LDL particles in her blood) under 1,000 and her LDL-C (the amount of cholesterol carried by these particles) under 70. She will take 1,000 mg of the health-promoting omega-3 fish oils EPA and DHA daily, in accordance with the American Heart Association recommendations. My preference is to favor DHA over EPA, as the omega-3 DHA is found naturally in much higher quantities in fatty fish such as salmon, and human beings as well. DHA also has a much greater presence in our hearts and brains than does EPA. She will take a baby aspirin daily.



Less commonly evaluated risk factors found on blood testing will also be assessed and managed appropriately. These include LpPLA2 (a measure of active vascular inflammation), CRP (a measure of systemic inflammation), Homocysteine (an amino acid byproduct and a substance that is known to



This image simultaneously shows all three coronary arteries, each containing some degree of plaque.

be toxic to all of our arteries), Lp(a) (a small and aggressive form of LDL) and Vitamin D (a recently recognized risk for heart disease when present in insufficient quantities in our blood). Managing Mrs. Wolf in this fashion, more attentively and aggressively, will hopefully add years to her life. Here, as always, knowledge is power. And power can mean the difference between life and death.



In 2007, Dr. Baum was made a fellow of the AHA, largely for his work in Coronary CT angiography. He has been a guest on numerous radio and television shows including National Public Radio, The Voice of America, CBN, Fox network, and MSNBC. Learn more about Dr. Baum at www.radthemag.com.

Her LAD has a complex plaque containing both fatty and calcific elements.

CCTA images provided by South Florida Medical Imaging