

## Research Abstract Presentations by Westside Medical Imaging at TCT-2007 Scientific Sessions

### Association of Carotid Artery Disease using Ultrasound to Coronary Artery Stenosis and Coronary Calcium using 64 Slice Cardiac CT Angiography

Background: Recent data suggests an association between carotid artery disease and increased rates of cardiovascular death. We sought to evaluate the association between carotid disease as evaluated by carotid ultrasound (US) to the presence of significant CAS and CAC as assessed by 64 slice CCTA.

Results:

	Normal US	Abnormal US
% total (n)	21% (13)	79% (48)
age (mean)	53.3 yrs	68.8 yrs
% Male	46%	58%
Mean CAC score	9	558
> 50% CAS (#)	23.1% (3)	45.8% (22)

Conclusion: Our data validates the concept that carotid artery disease is associated with CAD. However using carotid intimal:media thickness (IMT) screening has a sensitivity < 80% for the presence of coronary artery stenosis > 50%. This would seem to validate the need for more sensitive imaging modalities such as 64 slice coronary angiography.

### Association of Aortic Valve Calcification to Coronary Artery Disease Using 64 Slice Cardiac CT

Background: Patients with aortic valve calcification (AVC) have been noted to have increased rates of cardiovascular death compared to those without this disorder. We sought to evaluate the association between severities of AVC to the presence of significant coronary artery stenosis using 64 slice cardiac CTA.

Aortic Valve Calcification	Significant CAD in 3 or 4 segments
Minimal AVC (n = 44)	27.3% (12)
Mild AVC (n = 149)	48.3% (72)
Moderate to Severe AVC (n = 74)	56.8% (42)

Conclusion: Increasing severity of AVC is associated with increased incidence of significant obstructive disease in three or more segments of coronary arteries. Patients with increasing severity of AVC, particularly those without known obstructive coronary disease, should be considered for more intense evaluation for CAD.

### Association of Mitral Valve Calcification to Significant Coronary Artery Stenosis using 64 Slice CT

Background: Multiple studies have suggested the presence of mitral valve calcification (MVC) as a marker for atherosclerosis. Mitral valve calcification is often a finding on echocardiographic studies of questionable relevance and often overlooked. We sought to evaluate the association between MVC to significant coronary artery stenosis in patients without known history of CAD using 64 slice cardiac CTA as a possible explanation for the association of MVC and cardiovascular deaths.

<i>Mitral Valve Calcification</i>	<i>Significant Coronary Artery Stenosis</i>
No MVC (n=187)	16.4%
Minimum to Mild MVC (n=13)	35.1%
Moderate to Severe MVC (n=10)	45.5%
Any degree of MVC (n=23)	39.0%

Table 1. Severity of MVC in Association to Significant CAS.

Conclusion: Increasing severity of MVC is noted to be associated with a significantly increased incidence of > 50% luminal coronary stenosis, in those without known CAD. This points to similarities between the pathophysiology of these conditions and presents a plausible explanation for the association of MVC and cardiovascular deaths and need to evaluate patients with MVC for CAD.

### **Radiation Exposure and Cardiac Imaging**

During the scientific sessions, the issue of radiation exposure from a variety of cardiac imaging modalities was discussed. X-ray absorption from 64 slice cardiac CT is similar to the absorption from a stress nuclear study. There is a wide variance from institution to institution on x-ray exposure with rates as high as 23 mSv. **Because of x-ray reduction strategies employed by Westside Medical Imaging, x-ray exposure in the 6 mSv or less range are the norm** and in some patients who have lower BMI's and controlled heart rates it can even be less. It was felt that the **risk:benefit from CT coronary imaging was clear** in patients where this procedure was performed to evaluate symptoms suggestive of coronary artery disease and screening for coronary disease in men > 45 years of age with 1 or more conventional coronary risk factors and women > 50 years with 1 or more risk factors. **The shortcomings of the Framingham risk assessment model were emphasized and the fact that it misidentifies cardiac risk in 50% of people.**