

5. Perugini E, Guidalotti PL, Salvi F, et al. Noninvasive etiologic diagnosis of cardiac amyloidosis using  $^{99m}\text{Tc}$ -3,3-diphosphono-1,2-propanodicarboxylic acid scintigraphy. *J Am Coll Cardiol* 2005;46:1076-84.

## Reply

We welcome the interest of Drs. Rapezzi and colleagues in our article (1). We did not discuss radionuclide imaging of amyloid with tracers developed for bone scintigraphy because few data are available and because of constraints of space. Bone scintigraphy in amyloidosis has been evaluated systematically only in very small series (2), and there is no evidence as yet for a specific molecular interaction between bone-seeking isotopes and amyloid deposits. We believe that the suggestions by Dr. Rapezzi and colleagues that bone scintigraphy can facilitate the differential diagnosis of transthyretin and AL cardiac amyloidosis is therefore unsubstantiated in light of present knowledge but that further investigation of this interesting phenomenon is warranted.

**\*Joseph B. Selvanayagam, MBBS (Hons), FRACP, DPhil, FESC**

**Philip N. Hawkins, PhD, FRCP, FRCPath**

**Stefan Neubauer, MD, FRCP**

\*Department of Cardiovascular Medicine

Flinders Medical Centre

Adelaide 5042

Australia

E-mail: joseph.selva@fmc.sa.gov.au

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## REFERENCES

- Selvanayagam JB, Hawkins PN, Paul B, Myerson SG, Neubauer S. Evaluation and management of the cardiac amyloidosis. *J Am Coll Cardiol* 2007;50:2101-10.
- Perugini E, Guidalotti PL, Salvi F, et al. Noninvasive etiologic diagnosis of cardiac amyloidosis using  $^{99m}\text{Tc}$ -3,3-diphosphono-1,2-propanodicarboxylic acid scintigraphy. *J Am Coll Cardiol* 2005;46:1076-84.

## Is Computed Tomographic Angiography Prognostic in Patients With Cardiac Symptoms?

In the September 18, 2007, issue of the *Journal*, Min et al. (1) reported the results of their registry analysis of 1,127 patients with cardiac symptoms undergoing 16-slice coronary computed tomographic angiography. Their results suggest that all-cause mortality may be predicted by the results of computed tomographic angiography and the use of a simplified coronary plaque scoring system. If replicated, this study will be viewed as an important contribution to the field of cardiology.

There is one major issue we would like to raise. A substantial number of patients had moderate to severe triple-vessel coronary artery disease. We assume most of these patients underwent

revascularization that may well have affected their 15-month all-cause mortality and confounded interpretation of the data. This was also pointed out by the editorialist, John J. Mahmarian, MD (2). In a single-center, registry trial, the revascularization procedures and outcomes should be readily obtained and reported.

**\*Christopher J. Suhar, MD**  
**Todd M. Hitchcock, MD**  
**Robert J. Russo, MD, PhD, FACC**  
**Eric J. Topol, MD, FACC**

\*Scripps Clinic/Green Hospital  
 Division of Cardiovascular Diseases  
 10666 North Torrey Pines Road  
 SW206

La Jolla, California 92037

E-mail: suhar.christopher@scrippshealth.org

doi:10.1016/j.jacc.2007.12.037

## REFERENCES

- Min J, Shaw L, Devereux R, et al. Prognostic value of multidetector coronary computed tomographic angiography for prediction of all-cause mortality. *J Am Coll Cardiol* 2007;50:1161-70.
- Mahmarian J. Computed tomography coronary angiography as an anatomic basis for risk stratification. *J Am Coll Cardiol* 2007;50:1171-3.

## Reply

We thank Drs. Suhar, Hitchcock, Russo, and Topol for their interest in our recent report of the prognostic value of coronary computed tomographic angiography (CCTA) for the prediction of all-cause death (1). Suhar and colleagues raise the possibility that most patients in our study population with moderate to severe triple-vessel coronary artery disease may have undergone coronary revascularization that might have affected their mortality. In response to this important question, we have further evaluated data now available to us at the primary sites from which patients were referred. Among the 106 patients with CCTA-identified moderate to severe 3-vessel coronary artery disease (defined by severe plaque in the proximal or midportions of the left anterior descending artery/diagonal branch and left circumflex artery/obtuse marginal branch and right coronary artery, or moderate to severe plaque in the left main artery), 37 underwent subsequent invasive coronary angiography, with 6 undergoing percutaneous or surgical revascularization. No significant difference existed in all-cause mortality between the small groups of patients who underwent invasive angiography or coronary revascularization and the larger number who did not (both  $p > 0.20$  in univariate analyses).

As Suhar and colleagues also correctly note, these results represent intermediate-term outcomes based upon CCTA findings from 16-slice CCTA scans, for which long-term mortality data is only just beginning to unfold (2). Our study represents the scaling of only the first of many hurdles to come. Future prognostic series examining the efficacy of current generation 64-slice CCTA plaque identification for the prediction of future adverse outcome, including major cardiovascular events other than death, are necessary at this early stage in the field. Furthermore, additional information that can be routinely gleaned from a typical CCTA examination, including plaque composition patterns (3); cardiac chamber function, volumes, and mass (4); and myocardial attenuation densities (5) should be

studied to determine which of these, if any, provide incremental prognostic utility in those subjects more prone to death. We hope that our initial study will encourage such research so that the entirety of CCTA data can be incorporated into making optimal treatment decisions that can benefit all patients.

**\*James K. Min, MD**  
**Leslee J. Shaw, PhD**  
**Richard B. Devereux, MD**  
**Peter M. Okin, MD**  
**Jonathan W. Weinsaft, MD**  
**Donald J. Russo, MD**  
**Nicholas J. Lippolis, MD**  
**Daniel S. Berman, MD**  
**Tracy Q. Callister, MD**

\*Division of Cardiology  
Department of Medicine  
Weill Medical College of Cornell University  
New York Presbyterian Hospital  
520 East 70th Street, K415

New York, New York 10021  
E-mail: [jkm2001@med.cornell.edu](mailto:jkm2001@med.cornell.edu)

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#### REFERENCES

1. Min J, Shaw L, Devereux R, et al. Prognostic value of multidetector coronary computed tomographic angiography for prediction of all-cause mortality. *J Am Coll Cardiol* 2007;50:1161-70.
2. Ostrum MP, Yang E, Mao S, Gopal A, Ahmadi N, Budoff MJ. Mortality incidence and the severity of coronary atherosclerosis assessed by CT angiography (abstr). *Circulation* 2007;116:II771.
3. Cordeiro MA, Lima JA. Atherosclerotic plaque characterization by multidetector row computed tomography. *J Am Coll Cardiol* 2006;47 Suppl 8:C40-7.
4. van der Vleuten PA, Willems TP, Gotte MJ, et al. Quantification of global left ventricular function: comparison of multidetector computed tomography and magnetic resonance imaging: a meta-analysis and review of the current literature. *Acta Radiol* 2006;47:1049-57.
5. Cury RC, Nieman K, Shapiro MD, Nasir K, Cury RC, Brady TJ. Comprehensive cardiac CT study: evaluation of coronary arteries, left ventricular function, and myocardial perfusion—is it possible? *J Nucl Cardiol* 2007;14:229-43.