

## PROTOCOL FOR CARDIAC MULTIDETECTOR COMPUTED TOMOGRAPHY AND VALVE CALCIUM MEASUREMENT

Each participant underwent cardiac imaging using an eight-slice multi-detector computed tomography (CT, Lightspeed Ultra, GE, Milwaukee, WI, USA) as previously described (Hoffmann, Eur J. Radiol 2006). Two CT scans were performed for each participant using a sequential scan protocol with prospective gating of image acquisition. Calcium measurements were performed offline on an Acquarius workstation (Terarecon, San Matteo, CA, USA).

Calcium was defined as an area of  $\geq 3$  connected pixels with an attenuation of  $\geq 130$  Hounsfield units. A modified Agatston scoring protocol was used to quantify the extent of calcium in the aortic and mitral valves. Aortic valve calcium was defined as calcium deposits restricted to the aortic lumen, originating in the aortic lumen and extending to the periphery, or nodular deposits at the coaptation points of the aortic valve leaflets. We excluded calcium deposits restricted to the aortic wall. Mitral valve calcium was defined as calcium deposits in the region of the annulus and/or the mitral valve leaflets.

Each participant's two scans were initially read for the presence or absence of calcium by either of two observers. For all scans initially scored with detectable calcium, a third observer performed an independent read blinded to the results of the first read. Disagreement on the presence or absence of calcium was resolved by a consensus read involving the cardiologist and the radiologist.