Introduction

Heart disease, particularly coronary heart disease (CHD) is a major cause of morbidity and mortality among patients with diabetes mellitus *(Grundy et al., 1999).*

Compared to individuals without diabetes, those with diabetes have a higher prevalence of coronary heart disease (CHD), a greater extent of ischemia, and are more likely to have a myocardial infarction (MI) and silent myocardial ischemia *(Bernard et al., 2009).*

Noninvasive testing including myocardial perfusion scintigraphy and dobutamine stress echocardiography, have been used to detect CAD *(Schinkel et al., 2002 and Sozzi et al., 2003).*

However, direct visualization of the coronary arteries may be preferred because patients with diabetes frequently have diffuse, multivessel CAD *(Bernard et al., 2009).*

Currently, conventional angiography is performed to evaluate the presence and extent of CAD. However, this is an invasive approach associated with a minimal but definitive risk of complications, and a noninvasive technique that is capable of direct visualization of the coronary arteries would be preferred *(Bernard et al., 2009).*

Magnetic resonance imaging is one possible approach. Yet, in spite of the rapidly evolving technologies, the spatial resolution of MRI still poses difficulties to properly visualize the coronary arteries *(Dirksen et al, 2003).*

Computed tomography (CT) imaging represents an alternative approach to noninvasive coronary imaging. However, conventional CT has a low temporal resolution, because a heavy X-ray tube needs to rotate around the patient *(Achenbach, 2004).*

To improve the temporal resolution of conventional CT, increasing gantry rotation speed of conventional CT scanners and implementing software algorithms to reconstruct images using only parts of one rotation, represents a useful approach. Additionally, the development of detectors that permit acquisition of several parallel, thin slices simultaneously provides increased spatial resolution *(Achenbach, 2004).*

In addition, MSCT allows simultaneous assessment of left ventricular function, which is also an important prognostic parameter. Combined assessment of left ventricular function and the coronary artery status with MSCT may allow optimal noninvasive evaluation of patients with diabetes and suspected CAD *(Sozzi et al., 2003).*