Introduction

Cardiovascular diseases remain the ‘‘top killer’’ in industrialized Countries, ***(Rosamond et al., 2008)***, and are alarmingly increasing in prevalence in developing nations, ***(Reddy, 2004)*** which in turn are ill equipped to face the associated economic burden ***(Rosenzweig, 2007)***.

Ischemic Heart Disease (IHD) is the generic designation for a group of closely related clinical presentations, it resulting from an imbalance between the blood supply (perfusion) and demands of the myocardium for oxygenated blood ***(Bild et al., 2002)***. ***Atherosclerosis*** of the coronary arteries is the usual cause of IHD. In this form of arteriosclerosis, fatty, fibrous plaques, possibly including calcium deposits, narrow the lumen of the coronary arteries, reduce the volume of blood that can flow through them, and lead to myocardial ischemia, which can provoke myocardial infarction (MI) ***(Fröhner, 2007)***.

Many treatments have been linked to the improvement of mortality from CAD. These include secondary preventive medical therapy and revascularization ***(Lloyd-Jones, 2009)***. The roles of revascularization with coronary artery bypass graft (CABG) surgery and percutaneous coronary intervention (PCI) have evolved and expanded considerably, Both have been used to treat patients with acute myocardial infarctions, since CABG development in 1968 it has demonstrated significant improvement of anginal symptoms in patients with multivessel CAD and improvement of mortality in those with three-vessel or left main coronary artery disease ***(Spencer et al., 2010)***.

Conduits used for CABG surgery are either arterial or venous grafts. Venous grafts have demonstrated tendency to develop partial or complete occlusions with time, whereas arterial grafts have shown relative resistance to plaque formation and obstruction ***(Frazier et al., 2005)***.

Complications of CABG surgery may be classified into early or late. Early complications include thrombosis, graft mal-position or kinking. Late complications include graft aneurysms and late stenosis or occlusion ***(Frazier et al., 2005)***.

So far Invasive coronary angiography (**ICA**) is the standard diagnostic method for imaging coronary arteries and coronary artery bypass grafts (CABG). The risk of adverse events is small but serious, and potentially life-threatening sequelae may occur, including Arrhythmia, coronary artery dissection, and access site bleeding, Furthermore, catheterization induces some discomfort for patients and it is an expensive procedure. This situation constitutes the basis of the demand for a reliable noninvasive coronary imaging Technique. ***(Andreini et al., 2007)***.

Multislice computed tomography (MSCT) is a promising new noninvasive technique able to visualize the coronary artery lumen and patency of the venous and arterial conduits in the past, single detector row helical computed tomography (CT) have been applied for evaluation of graft patency. The limited temporal resolution with consecutive motion artifacts rendered single detector row CT of little value, particularly for the assessment of distal anastomotic sites ***(Willmann et al., 2004)***.

The first generation of multislice scanners (four slices) showed high sensitivity and specificity in detecting graft occlusion, but lack of adequate precision in the identification of significant stenosis, The new generation of multislice computed tomography (MSCT) is characterized by an increased temporal and spatial resolution, allowing a shorter scan time and, thus, less disturbance due to respiratory artifacts ***(Auguadro et al., 2009)***.