



SOMASCAN CARDIOVASCULAR

ADVANCED MEDICAL IMAGING

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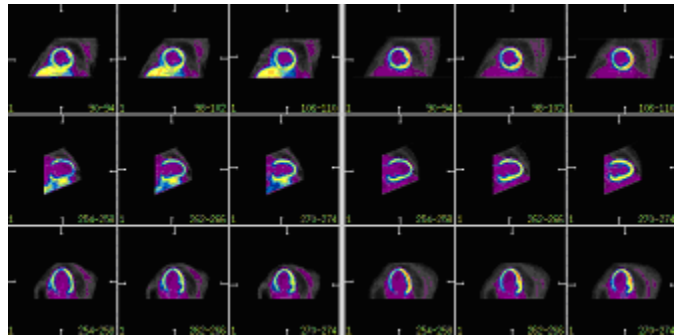
PET and the heart

Heart disease in the U.S.

Cardiovascular disease is the number one cause of death in the United States. It accounts for almost as many lives as the next seven causes of death combined. It is estimated that 61.87 million Americans have some form of cardiovascular disease. Literature states that women now comprise the majority of cardiovascular disease-related deaths, while men are more likely to develop the disease at an earlier age. Early detection through diagnostic imaging can improve long-term patient management.

Role of PET in coronary artery disease

PET is useful in the detection and evaluation of myocardial disease as well as the assessment of tissue viability in patients for whom revascularization may be an option. PET perfusion studies provide useful qualitative and quantitative data for assessment of CAD's physiologic significance beyond that available from angiographic images. While PET provides more advanced capabilities than SPECT studies in detection of CAD, procedure growth has been slowed by limited availability and cost of tracers (nitrogen 13, rubidium 82, oxygen 15-labelled water). Furthermore, the sensitivity of PET in detection of CAD is comparable to SPECT studies, although PET's specificity is greater.



Assessment of myocardial viability using FDG PET has grown more quickly than perfusion applications and currently accounts for three to five percent of U.S. PET procedures. The test is used to identify patients who may benefit from revascularization procedures. Some patients may have chronically ischemic myocardial tissue that remains viable. In such patients, left ventricular function may improve substantially from revascularization. FDG PET studies are used to identify mismatches in flow-metabolism that are indicative of hibernating but viable myocardial tissue, and distinguish such living tissue from scar that has developed following an acute myocardial infarct (MI). Patients with hibernating myocardial tissue are known to be at greater risk of an additional MI or cardiac death when revascularization is not undertaken.

Reimbursement for PET

Effective October 1, 2002, Medicare expanded coverage for PET for the evaluation of coronary artery disease to include: (1) myocardial rest-stress perfusion studies using rubidium Rb 82 for non-invasive detection of CAD and estimation of disease severity instead of SPECT perfusion, or following an inconclusive SPECT study, and (2) myocardial viability assessment using FDG following an inconclusive SPECT study. In early 2002, the Medicare Coverage Advisory Committee met and stated that the Centers for Medicare and Medicaid Services intends to revise Medicare coverage to reflect that both SPECT or PET are reasonable and necessary as a primary or initial diagnostic study for determining myocardial viability prior to revascularization.

A number of private insurers also reimburse for PET cardiac studies particularly when accompanied by letters of medical necessity documenting that other tests have been inconclusive. Of the current cardiac applications, FDG viability studies are the most common.

PET findings:

Viable myocardium in every coronary territory. Reverse mismatch in septum due to left bundle branch block.