SJHG Heartbeat

Number 111 **November 2006**

Appropriateness Criteria for SPECT MPI

Stress **S**ingle **P**hoton **E**mission **C**omputed **T**omography **M**yocardial **P**erfusion **I**maging (**SPECT MPI**) is a sophisticated diagnostic imaging technology, used for the detection of undiagnosed coronary disease (CAD) and to evaluate progression and prognosis of those with known disease. The challenge for cardiologists and referring physicians is to determine how to best use this critical tool while striving to avoid overuse and to practice cost-effective medicine—not an easy task. This *Heartbeat* will review data from a recent report of the American College of Cardiology Foundation (ACCF) and the American Society of Nuclear Cardiology (ASNC) endorsed by the American Heart Association (AHA) which leads the way in this challenge.[1]

A technical panel rated the use of SPECT MPI for 52 indications, weighing the risks versus benefits in each. The 13 indications which were rated inappropriate, and for which it does not recommend reimbursement, are listed on the next page. Appropriateness criteria cannot take the place of a physician's best judgment, but be aware that payers will likely require additional documentation on mitigating clinical parameters and patient circumstances if you use the test for one of these indications.

Expanding and clarifying on this list, using SPECT MPI for risk assessment post coronary artery bypass grafting [CABG] should be reserved for 5 years, unless the patient becomes symptomatic, according to the ACC/AHA Guidelines.[2] Percutaneous coronary intervention (PCI) patients should not be studied before 2 years post intervention PCI unless clinically symptomatic.

It is also important to mention that dyspnea, which is not a Medicare approved indication for SPECT MPI or mentioned in the criteria, is a symptom that has a fairly high-yield of abnormal results, indicating that dyspnea-shortness of breath (SOB) is frequently an anginal equivalent (just list SOB/anginal equivalent on your request form). This is especially true in older men and diabetics per a recent study using SPECT MPI to assess dyspnea for the detection of undiagnosed CAD.[3] Women frequently present with atypical or *soft* symptoms for CAD post menopause. It's easy to attribute the SOB to multiple causes, including age, weight and deconditioning, but don't shortchange your patients. If their risk profile is indicative of higher risk, push harder for the appropriate cardiac testing. **Always, always do an appropriate assessment to exclude anemia for your patients with SOB (two recent personal *burnings*), before you proceed with the cardiac work-up.**

Inappropriate Criteria for SPECT MPI:

Detection of CAD: *Evaluation of Chest Pain Syndrome*
Low pretest probability of CAD, ECG interpretable and able to exercise
→ Exercise Treadmill Testing (ETT) in men or ETT/Echo in women for supportive reassurance
Detection of CAD: *Symptomatic Acute Chest Pain (in Reference to Rest Perfusion Imaging)*
High pretest probability of CAD and ECG: ST elevation → Coronary Visualization
Detection of CAD: *Asymptomatic (without Chest Pain Syndrome)*
Low CHD Risk based on Framingham Risk Criteria → No testing or ETT
Risk Assessment: *General and Specific Patient Populations – Asymptomatic*
Low CHD risk based on Framingham Risk Criteria → No testing or ETT
Risk Assessment with Prior Test Results: *Asymptomatic or Stable Symptoms – Normal Prior SPECT MPI Study* → No testing
Normal initial RNI study, high CHD risk and annual SPECT MPI study
Risk Assessment with Prior Test Results: *Asymptomatic or Stable Symptoms – Abnormal Catheterization or Prior SPECT MPI Study* → Continue treatment and monitor clinically
Known CAD on catheterization or prior SPECT MPI study in patients who have not had revascularization procedure, asymptomatic or stable symptoms, and less than one year to evaluate worsening disease
Risk Assessment with Prior Test Results: *Asymptomatic*
Prior coronary calcium score less than 100 → No testing vs ETT or ETT/Echo for patient reassurance
Risk Assessment: *Preoperative Evaluation for Low-Risk, Non-Cardiac Surgery* Preoperative evaluation for non-cardiac surgery risk assessment → No testing
Risk Assessment: *Preoperative Evaluation for Intermediate Risk, Non-Cardiac Surgery*
Minor to intermediate perioperative risk predictor and normal exercise tolerance (greater than or equal to 4 METS) → No testing
Risk Assessment: *Preoperative Evaluation for High Risk, Non-Cardiac Surgery* Asymptomatic up to one year post normal catheterization, noninvasive test, or previous revascularization → No testing
Risk Assessment: *Following Acute Coronary Syndrome (STEMI — Hemodynamically Unstable, Signs of Cardiogenic Shock, or Mechanical Complications)*
Thrombolytic therapy administered
Risk Assessment: Following Acute Coronary Syndrome — *Asymptomatic Post Revascularization (PCI or CABG)* Routine evaluation prior to hospital discharge
Risk Assessment: *Post-Revascularization, Asymptomatic*
Symptomatic prior to previous revascularization and less than two years after PCI – pending approval from Technical Panel

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***Heartbeat* is a South Jersey Heart Group publication.**

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[1] Brindis RG et al. ACCF/ ASNC appropriateness criteria for SPECT MPI. *J Am Coll Cardiol* October 18 2005; 46: 1587-1605.

[2] Klocke FJ et al. ACC/AHA/ASNC Guidelines for the Clinical Use of Cardiac Radionuclide Imaging—Executive Summary. A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/ASNC Committee to Revise the 1995 Guidelines for the Clinical Use of Cardiac Radionuclide Imaging). *J Am Coll Cardiol* October 2003; 42: 318-1333.

[3] Balaravi B et al. The value of stress single photon emission tomography in patients without known coronary artery disease presenting with dyspnea. *Am Heart J* September 2006; 152: 551-557.