

PET of the Heart

CPT: 78429 through 78434, 78459, 78491, 78492

For Metabolic Evaluation

- To determine if revascularization is feasible, looking for “hibernating myocardium”

References

1. Gavin I.W. Galasko and Avijit Lahiri The non-invasive assessment of hibernating myocardium in ischaemic cardiomyopathy—a myriad of techniques Eur J Heart Fail (2003) 5(3): 217-227

Prior to revascularization to evaluate myocardial viability

Recent SPECT myocardial perfusion scan or other study nondiagnostic

PET of the Heart may be performed instead of SPECT imaging in patients meeting both of the following:

With any one of the following AND

- Obese (BMI > 40)
- Breast implants
- Large breasts
- Prior surgery to chest wall that might interfere with SPECT

Any One of the following

Known Coronary Artery Disease

- Changed chest pain CHF – annual exam Stable or asymptomatic – allowed every two years

No prior Coronary Artery Disease diagnosis

Abnormal stress test Diabetes

Framingham risk percentage >10%

- There is an online Framingham Risk Calculator at <http://www.intmed.mcw.edu/clincalc/heartrisk.html>

Patient on Digoxin or similar medication

Patient unable to perform stress test

Uninterpretable EKG

Ventricular tachycardia

Chest pain syndrome or Ischemic equivalent (including new EKG changes suggesting ischemia)

- Chest pain syndrome includes ANY OF THE FOLLOWING pain, tightness, or burning sensation in chest, dyspnea, shoulder pain, and jaw pain.
- Low pretest probability of CAD AND ECG uninterpretable OR unable to exercise

Intermediate pretest probability of CAD

- ECG interpretable AND able to exercise ECG uninterpretable OR unable to exercise

High pretest probability of CAD

- Regardless of ECG interpretability and ability to exercise

Symptomatic Acute Chest Pain Possible ACS

ECG—no ischemic changes or with LBBB or electronically ventricular paced rhythm

Ask for or Calculate TIMI score

- Low-risk TIMI score AND Peak troponin: borderline, equivocal, minimally elevated
- Low-risk TIMI score AND Negative peak troponin levels
- High-risk TIMI score AND Peak troponin: borderline, equivocal, minimally elevated
- High-risk TIMI score AND Negative peak troponin levels
- Recent or current chest pain AND Initial troponin negative

Risk Assessment

Without Ischemic equivalent (including new EKG changes suggesting ischemia)

Asymptomatic with High CHD risk (ATP III risk criteria)

- Arrhythmia
- Diabetes
- Framingham risk percentage is >10%
- History of CHF
- History of CVA
- Mitral or other valvular disease
- Ventricular Tachycardia

Syncope

- Intermediate or high CHD risk (ATP III risk criteria)
- Elevated Troponin Troponin elevation without additional evidence of acute coronary syndrome

After Prior Testing

Known Chronic Stable CAD and

- Coronary Calcium Agatston Score greater than 100, or
- Equivocal, Borderline, or Discordant testing, or
- Duke Treadmill Score High or Intermediate
- Equivocal, Borderline, or Discordant Noninvasive stress testing AND CAD remains a concern
- Abnormal coronary angiography and New or Worsening Symptoms
- Abnormal prior stress imaging study and New or Worsening Symptoms
- Coronary Angiography (Invasive or Noninvasive) Results showing Coronary stenosis or anatomic abnormality of uncertain significance

Coronary Calcium Agatston Score greater than 100 and [BOTH]

- Asymptomatic
- High CHD risk
- Duke Treadmill Score High or Intermediate

Preoperative Evaluation for Intermediate-Risk Noncardiac Surgery Without Active Cardiac Conditions*

- Greater than or equal to 1 clinical risk factor OR
- Poor or unknown functional capacity (less than 4 METS)

Preoperative Evaluation for Vascular Noncardiac Surgery Without Active Cardiac Conditions*

- Greater than or equal to 1 clinical risk factor OR
- Poor or unknown functional capacity (less than 4 METS)

Within 3 Months of an ACS ST-elevation myocardial infarction or unstable angina (UA) and non-ST-elevation myocardial infarction [ALL Three]

- Hemodynamically stable, no recurrent chest pain symptoms or no signs of HF
- To evaluate for inducible ischemia
- No prior coronary angiography

Postrevascularization (PCI or CABG) [ANY]

- Evaluation of ischemic equivalent
- Incomplete revascularization
- Additional revascularization feasible
- Greater than or equal to 5 years after CABG A (7)

Ischemic Cardiomyopathy/Assessment of Viability

- Known severe LV dysfunction
- Patient eligible for revascularization

Evaluation of Ventricular Function

- Assessment of LV function with radionuclide angiography (ERNA or FP RNA)
- No recent reliable diagnostic information regarding ventricular function obtained with another imaging modality
- Routine± use of rest/stress ECG-gating with SPECT or PET MPI A (9)

Evaluation of Ventricular Function during Use of Potentially Cardiotoxic Therapy (e.g., Doxorubicin)

- Serial assessment of LV function with radionuclide angiogram (ERNA or FP RNA)

References

1. American College of Cardiology Foundation Appropriate Use Criteria Task Force, , American Society of Nuclear Cardiology, , American College of Radiology, , American Heart Association, , American Society of Echocardiography, , Society of Cardiovascular Computed Tomography, , Society for Cardiovascular Magnetic Resonance, , Society of Nuclear Medicine, , American College of Emergency Physicians, , Hendel, Robert C., Berman, Daniel S., Di Carli, Marcelo F., Heidenreich, Paul A., Henkin, Robert E., Pellikka, Patricia A., Pohost, Gerald M., Williams, Kim A. ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM 2009 Appropriate Use Criteria for Cardiac Radionuclide Imaging
2. J Am Coll Cardiol 2009 0: j.jacc.2009.02.013