



MPI vs. SE

Test Request Tip Sheet


Myocardial perfusion imaging (MPI) vs. stress echocardiography (SE)

- Both MPI and SE are performed for evaluation of CAD/IHD.
- In general, MPI is more powerful than SE when assessing myocardial viability in patients who have had a prior MI, particularly in those who may require intervention.
- Sensitivity for MPI is slightly greater than for SE (88 vs 76 percent), but specificity is greater for SE (88 vs. 77 percent).
- When deciding between MPI and SE, the patient's ability to exercise on a treadmill should be considered, along with baseline EKG and coronary risk factors.
- **SE avoids risk of radiation:** 15–25 mSv for MPI (compared to 0.1 mSv for chest X-ray).

Radiation Exposure

MPI: 15–25 mSv
SE: 0 mSv

*Limit radiation exposure
whenever possible.*



MPI is preferred over SE for patients with:

1. Presence of pacemaker or ICD.
2. LBBB on EKG.
3. WPW syndrome.
4. Poorly controlled AF.
5. Frequent PVCs.
6. Prior cardiac surgery: CABG, valve surgery.
7. Documented regional wall motion abnormalities (dyskinesis, akinesis, hypokinesis, hyperkinesis) on prior echocardiogram (echo), catheterization, or MPI study.
8. Poor acoustic window as documented on baseline or prior echo.
9. Obesity: BMI 40 or more.
10. Unable to ambulate on a treadmill: amputees, requires cane or walker, wheelchair bound, arthritis with documented limitation, recent hip or knee replacement.
11. Poor functional capacity: less than 4 METS.
12. CHF with LVEF less than 40 percent.
13. COPD (documented on prior PFT's), severe SOB with minimal exertion, home O2.

14. Suspected coronary disease who are taking an IC antiarrhythmic agent such as Propafenone or Flecainide.
15. Poorly controlled hypertension (systole greater than 180, diastole greater than 120).
16. Active foot wound/ulcer.
17. Unable to perform ADLs with documented extent of limitations.

SE is an alternative to MPI for most other patients, including those who:

1. Can exercise.
2. Are at low risk for cardiac events or don't exhibit high-risk markers.

Choosing Wisely Recommendations

1. Don't perform MPI on patients who don't have cardiac symptoms unless high-risk markers are present.
2. Don't perform MPI on patients at low risk for cardiac events.
3. Don't perform MPI for routine follow-up of asymptomatic patients.
4. Don't perform MPI as pre-op assessment in asymptomatic patients undergoing low- or intermediate-risk noncardiac surgery.