

Ordering Cardiac Stress Tests

1. Are there patients for whom I should order a Cardiolite® stress test, rather than an exercise stress test?

Question submitted by: Dr. Steve Choi, Oakville, Ontario

Before ordering any clinical, laboratory, or imaging tests, one should ask oneself: "How will the results of this test change my management?" If a patient has classic, disabling angina (high "pretest" probability of coronary artery stenosis), you'll refer for invasive angiography and revascularization, so why order the stress test? If the patient is a young woman with atypical chest pain, low pretest probability, you might well elect to watch and wait, no matter what the stress test shows. Only for those in the middle, with, for example, a 25 to 75% pretest probability, does a stress test change the probability significantly. Older age, male sex, other cardiovascular risk factors, and the characteristics of chest pain determine this pretest probability.¹

The sensitivity of treadmill exercise tests using electrocardiography is about 70%; 7 of 10 patients with at least 50% luminal narrowing will show 0.5 mm ST depression or more.² This means 30% turn out to be "false negatives." The specificity, negative test in healthy persons, varies from 60% for 0.5 mm ST depression to 98% for 2.0 mm ST depression. So, the positive likelihood ratio [sensitivity/(1-specificity)] is high. Other tests using imaging (stress echocardiography and nuclear imaging using sestamibi (Cardiolite®) have a somewhat greater sensitivity, about 85%.

Treadmill electrocardiography is cheaper and more readily available than imaging tests. On the other hand, imaging tests can provide

information about cardiac function (e.g., ejection fraction). In summary, order a regular treadmill test in moderate probability patients. If that is equivocal or you want information about cardiac function, order an imaging test. If the patient has pre-existing EKG abnormalities, such as left bundle branch block or ST segment abnormalities, imaging is the test of choice.

References

1. Pryor DB, Harrell FE Jr, Lee KL *et al*: Estimating the Likelihood of Significant Coronary Artery Disease. *Am J Med* 1983; 75(5):771-780.
2. Garber AM, Solomon NA: Cost-effectiveness of Alternative Test Strategies for the Diagnosis of Coronary Artery Disease. *Ann Intern Med* 1999; 130(9):719-728.

Answered by:
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Should Patients with Coronary Artery Stents Continue Taking Folic Acid?

2. For patients with coronary artery stents, do you recommend that I tell them to stop taking folic acid?

Question submitted by: Dr. Eric Grief, Thornhill, Ontario

Homocysteine is an amino acid normally found in blood, but elevated levels have been linked with coronary heart disease and stroke. Despite evidence that folic acid supplementation reduces the homocysteine level, a recent meta-analysis showed that it does not reduce the risk of heart disease, stroke, or cancer.

This meta-analysis examined eight trials with a total of 37,485 subjects, comparing the value of folic acid supplements against placebo. These trials represented all the large randomized studies available that were designed to

lower plasma homocysteine levels for the prevention of cardiovascular disease. Although this analysis revealed no significant benefit from folic acid supplementation, there was no signal that it caused harm either.

When I encounter cardiovascular patients, including those with stents who are taking folic acid, I do not usually advise them to stop. However, I let them know that there is no evidence of benefit and encourage them to take medications that have been known to produce beneficial results.

Reference

1. Clarke R, Halsey J, Lewington S, et al: For the B-Vitamin Treatment Trialists' Collaboration. Effects of Lowering Homocysteine Levels with B Vitamins on Cardiovascular Disease, Cancer, and Cause-Specific Mortality – Meta-analysis of 8 Randomized Trials Involving 37 485 Individuals. *Arch Intern Med* 2010; 170(18):1622–1631.

Answered by:
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