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Exercise Electrocardiogram Stress Testing for Evaluation of Chest Pain

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We read the study by Demir et al¹ on 2 hospital's approach to evaluation of suspected coronary artery disease. Hospital A performed exercise treadmill stress testing (ETT) alone as the first diagnostic test in a chest pain clinic. Of the 483 patients, 43.3% were excluded because of inability to exercise or abnormal baseline electrocardiogram (EKG). In our experience, much greater percentage of patients are able to exercise on the treadmill. Some may require bicycle testing because of orthopedic problems.

Gibler et al² reported 1,010 consecutive patients enrolled in the Heart ER program of which 791 had graded EKG stress testing and only 10.5% were excluded because of underlying physical constraints or EKG abnormalities. Dedic et al³ found that 10.7% (81 of 756) of patients were unable to perform ETT because of inability to cycle, resting EKG abnormalities, pulmonary disease, or other unspecified reasons. The exclusion rate would have been 6% considering only exercise EKG. Ramakrishna et al⁴ studied 152 patients with intermediate cardiac risk, and 131 patients were able to perform an ETT with or without imaging and thus leaving the exclusion rate of only 14%.

The current American Heart Association guidelines for stress testing and for management of non-ST-elevation acute coronary syndrome recommend that ETT without imaging could be performed as the initial test in patients at low-to-intermediate cardiac risk who present with ischemic symptoms and can exercise, do not have significant baseline EKG changes that preclude interpretation, and are not taking digoxin.⁵ We have observed ETT alone is not the standard practice at this institution; moreover, we suspect that most institutions perform stress testing with imaging, usually nuclear, which involves much radiation as the first test. The study reported by Demir et al would support this practice. It has been our observation many patients who are perceived either by physician or patient as being unable to exercise are actually able to do so. Not performing an exercise stress test leads to loss of very valuable diagnostic and prognostic information such as that described in the Duke Treadmill Score. We suspect if more patients had actually performed an exercise stress test, the results may have been different from that reported.

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