

Stress dobutamine, stress dipyridamole and exercise testing : comparative evaluation.

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The value of stress dobutamine 99-Tc-MIBI imaging was evaluated as a non-invasive diagnostic method for assessing coronary artery disease (CAD) by comparison to stress dipyridamole-thallium SPECT in 18 patients (group 1) and by comparison to exercise thallium SPECT in 16 other ones (group 2).

In these 34 patients who underwent coronary angiography (CA), simultaneous ECG and echocardiographic monitoring was also performed during stepwise dobutamine (DOB) infusion.

Because of the high prevalence of CAD in these patients (2 patients with normal CA), the comparative parameters concern the detection of lesion with a diameter stenosis > 70 %.

Whereas the overall sensitivity of DOB MIBI-SPECT were 88% (28/32), these values for DOB ECG and echocardiography were 28% (9/32) and 84% (27/32) respectively. When DOB echocardiography and MIBI-SPECT were evaluated together, the diagnostic accuracy reaches almost 100% (31/32).

In group1, overall sensitivity of dipyridamole (DYP) testing (0,56mg/kg over 4 minutes) and DOS testing (up to 40 µg/kg/min with addition of 0,25 to 1gof atropine in some patients) were comparable: 82% (14/17) and 88% (15/17) respectively, but the capability of detection of one-vessel CAD is lower in both methods (5/8 versus 6/8).

In group 2, overall sensitivity of DOB testing was not significantly different than that of exercise testing 87% (13/15) and 93% (14/15) respectively, but the capability of detection of one-vessel CAD was clearly higher by exercise testing (4/7 versus 6/7). Significant ST segment depression on ECG was observed in 5/17 (29%) cases by DOB compared to 2/17 (13%)by DYP in group1 and in 4/15 (26%) cases by DOB compared to 7/15 (47%) by exercise testing.

Despite the different hemodynamic effects, exercise, DOB and DYP SPECT imaging have high overall diagnostic values.

The diagnostic accuracy of ECG was higher for exercise than for dobutamine or dipyridamole testing. One-vessel CAD seem better detected by exercise testing then by the two other tests.