

Simultaneous assessment of function and perfusion during dipyridamole-handgrip Tc-99m sestamibi imaging in chronic coronary artery disease

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The main goal of this work was to know the value of ventricular function in addition to perfusion Tc-99m sestamibi images in the assessment of coronary artery disease (CAD) when using dipyridamole (DIP) associated to isometric exercise. We analyzed 52 patients with suspected CAD; 40 of them had coronary lesions $\geq 50\%$ and 12 patients without CAD, conforming study and control groups, respectively. Twenty-eight patients had prior myocardial infarction. A two-day sestamibi protocol was employed with i.v. DIP-handgrip and rest injections, acquiring ECG-gated first pass and planar perfusion images.

Sensitivity for perfusion images was 85% and specificity was 91.7%. There was no change between rest and DIP ejection fraction (EF) in controls. CAD patients presented a significant EF decrease with DIP ($p: 0.0015$). Patients with ischemia in perfusion images had larger EF decrease ($p: 0.0001$). For the analysis, an EF drop $\geq 5\%$ and any wall motion abnormality (WMA) were considered as having an abnormal response to DIP. CAD sensitivity improved significantly to 92.5% when adding EF drop and to 90% when adding WMA parameters, but specificity decreased to 75% with EF drop, and to 58.3% with WMA. In conclusion, first pass parameters from DIP-isometric exercise in addition to perfusion images are not a significant help in the assessment of CAD.

Key words: dipyridamole, Tc-99m sestamibi, ventricular function, isometric exercise