

**Identification of asynergic but viable myocardium in patients with chronic coronary artery disease by gated blood pool scintigraphy during isosorbide dinitrate and low-dose dobutamine infusion: Comparison with thallium-201 scintigraphy with reinjection**

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To evaluate the ability of low-dose dobutamine and isosorbide dinitrate (ISDN) gated blood pool scintigraphy (GBPS) and thallium SPECT with reinjection to identify viability in asynergic myocardium, both procedures were performed in 38 consecutive patients with chronic coronary artery disease and left ventricular dysfunction. Twenty-two of the 38 patients with successful revascularization were analyzed. GBPS was performed at the baseline and during continuous infusion of low dose dobutamine (5  $\mu\text{g}/\text{kg}/\text{min}$ ) and ISDN (2  $\mu\text{g}/\text{kg}/\text{min}$ ). Cine mode GBPS wall motion was scored from normal (0) to dyskinesia (4) semiquantitatively. Forty-seven of 110 segments with severe asynergy at the baseline were analyzed. Viability determined by GBPS was defined as wall motion score improvement by more than 1 grade. Thallium viability was defined as the segment with redistribution or fill in with severe initial perfusion defect. GBPS was 76.7% sensitive and 70.6% specific for predicting post vascularization wall motion improvement ( $p < 0.005$ ). Of 47 segments with severe asynergy, concordance of judgement was obtained in 40 segments (85.1%), and reversibility was correctly diagnosed in 34 of 40 patients (85.0%), but thallium with reinjection correctly identified tissue viability in 6 of 7 segments with discordance between 2 studies.

These data suggest that most cases of reversible asynergy (hibernating myocardium) respond to ISDN and dobutamine, suggesting the possibility of predicting improvement by revascularization, although some underestimation of tissue viability remained to be resolved. Thallium with reinjection is superior to low-dose dobutamine + ISDN GBPS for the assessment of myocardial viability.

**Key words:** myocardial viability, thallium-201 with reinjection, gated blood pool scintigraphy, dobutamine, isosorbide dinitrate