

 Restricted access | Research article | First published May 2002

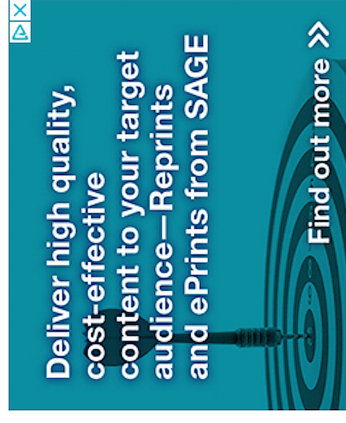
A Tête-à-Tête Comparison of Ejection Fraction and Regional Wall Motion Abnormalities as Measured by Echocardiography and Gated Sestamibi SPECT

[Richard M. Fleming, MD, FACA](#) [View all authors and affiliations](#)
[Volume 53, Issue 3](#) | <https://doi.org/10.1177/000331970205300309>

 Contents |  Get access |  Cite article |  Share options |  Information, rights and permissions |  Metrics and citations

Abstract

Determination of ejection fraction and regional wall motion abnormalities (RWMA) consistent with stunned, hibernating, or infarcted myocardium can be noninvasively determined by both echocardiography and nuclear cardiac imaging. Prior comparisons between the 2 methods have been limited to Tc 99m pertechnetate or to stress images with attention to RWMA only. To determine the relationship between results seen with echocardiography and gated single photon emission computed tomography (SPECT) using sestamibi, 26 individuals with varying degrees of coronary artery disease were prospectively studied with both techniques. Five individuals had single-vessel disease, 10 had 2-vessel disease, and 11 had triple-vessel disease. Each individual underwent 2-D, M-mode, and Doppler echocardiography (echo) as well as gated SPECT imaging using rest and stress (high-dose dipyridamole/HDD) sestamibi imaging. The results were statistically different when ejection fractions (EFs) and RWMA were compared. There were no statistical differences between EFs determined at rest when either echo or nuclear imaging was used. However, patients with EFs <70-80% were overestimated by echo, with echo underestimating EFs > 70-80% ($p = 0.001$). There was a high correlation ($r = 0.76$) between resting echocardiographic EFs and SPECT resting gated sestamibi images in patients with single-vessel disease, and a moderate correlation ($r=0.68$ and $r=0.68$) in patients with 2- and 3-vessel disease, respectively. Differences in the detection of RWMA were statistically different for patients with 2-vessel disease ($p = 0.04$) and approached significance in 3-vessel disease ($p = 0.56$) with more RWMA being detected by resting gated SPECT imaging than by echo. Greater differences in RWMA were seen in patients with 1-, 2-, and 3-vessel disease when resting echo was compared with HDD gated SPECT sestamibi imaging. These differences were statistically greater in 2- ($p=0.0027$) and 3- ($p=0.0003$) vessel disease. Differences between stress and resting images are expected in individuals with severe coronary artery disease. Comparison of noninvasive assessment of EFs and RWMA by gated SPECT sestamibi and echocardiography showed different results when looking at EFs, with echo reporting greater EFs for people with EFs < 70-80%. Patients with two and 3-vessel disease were statistically more likely to have RWMA detected by gated SPECT sestamibi than by echo.



Similar articles:

 Restricted access

[High-Dose Dipyridamole and Gated Sestamibi SPECT Imaging Provide Diagnostic Resting and Stress Ejection Fractions Useful for Predicting Extent of Coronary Artery Disease](#)

Show Details ▾

 Restricted access

[Hybrid Exercise Echocardiograph](#)

Show Details ▾

 Restricted access

[Usefulness of Immediate Postexercise](#)