Echocardiography in patients with coronary artery disease

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Echocardiography provides a unique opportunity to study the left ventricle in a manner which is not only noninvasive, but in many cases, superior to any other technique available. This examination permits the recording of wall motion with exquisite sensitivity with a sampling rate of 1000/sec, which is comparable to a movie of 1000 frames/sec. Recent data indicate that systolic wall thickening is an important measurement in ischemic heart disease. This abnormality may be more specific in the detection of ischemic myocardium than is wall motion. No other technique can examine wall thickening with the sensitivity of echocardiography. Further observations indicate that this diagnostic examination can detect thin, scarred myocardium which has no reversible function, even with revascularization.

Development of real-time, cross-sectional echocardiography is greatly enhancing the ability to use echocardiography for the evaluation of patients with ischemic heart disease. This new development permits the examination of almost all of the left ventricle, especially the apex. Although there remain technical difficulties, cross-sectional echocardiography has the potential of examining more of the left ventricle

than any angiographic or isotopic technique. This newer examination also can assess the shape of the ventricle with reasonably good accuracy and is particularly helpful in the detection of ventricular aneurysms. Yet another advantage of cross-sectional echocardiography is that it provides the means to quantitate the amount of abnormal muscle noted on the M-mode examination.

As new developments occur and as technical difficulties are overcome, the echocardiographic examination of the left ventricle should prove to be increasingly important, especially in patients with coronary artery disease.