

EL12. New Aspects of Nuclear Cardiology: Simultaneous Perfusion-Function Imaging and Assessment of Acute Ischemic Syndromes

James E. Udelson

Nuclear Cardiology Laboratory, New England Medical Center, Tufts University School of Medicine, U.S.A.

Simultaneous Perfusion-Function Imaging There are many potential uses for the information provided by gated planar or SPECT imaging with agents such as sestamibi or tetrofosmin. Assessment of regional ventricular function is accomplished by assessing the change in brightness or endocardial wall excursion. Measurement of global LV function is possible by tracing the endocardial borders, either manually or by using automated edge detection algorithms. The finding of preserved wall motion on gated imaging in patients in whom breast attenuation creates the appearance of an anterior fixed defect assists in the differentiation between artifact and infarct. Finally, the simultaneous evaluation of stress perfusion and resting regional function may allow differentiation of ischemia from infarct with a single acquisition, potentially allowing elimination of rest imaging in selected patients.

Assessment of Acute Ischemic Syndromes Recently, sestamibi imaging has been studied in patients presenting with suspected acute ischemia in the emer-

gency department (ED). Varetto et al. performed rest sestamibi SPECT imaging in 64 patients presenting to the ED with chest pain and non-diagnostic ECGs. Thirty-four patients had normal scans, none of whom were subsequently found to have significant coronary artery disease. All of the patients with normal scans remained free of morbid cardiac events up to 18 months after discharge. Hilton and coworkers looked specifically at the prognostic significance of sestamibi myocardial perfusion images obtained in ED patients with chest pain. Only one cardiac event (defined as cardiac death, non-fatal myocardial infarction, or need for acute coronary intervention) occurred during short-term hospital follow-up among 102 patients with normal scans, and there were no subsequent cardiac events (death, non-fatal infarction, thrombolysis, PTCA or CABG) during a three month post-hospital follow up. These promising data suggest that this technique may significantly improve ED triage of patients with chest pain.