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Incremental prognostic power of single-photon emission computed tomographic myocardial perfusion imaging in patients with known or suspected coronary artery disease
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Noninvasive stress testing provides prognostic information in patients who have suspected coronary artery disease, but limited data are available on the incremental value of myocardial perfusion testing in high-risk patients. We studied 3,275 patients who underwent cardiac catheterization and single-photon emission computed tomographic (SPECT) perfusion imaging. Median follow-up was 3.1 years for death, cardiovascular death, and a composite of cardiovascular death or nonfatal myocardial infarction. Using Cox's proportional hazards regression models, we examined the relation of SPECT summed stress score (SSS) to each outcome. A 1-unit change in SSS was associated with increased risks of 4%, 7%, and 5% for death, cardiovascular death, and death or nonfatal myocardial infarction, respectively (all p <0.0001). To examine the prognostic utility of SPECT, after baseline adjustments, SSS and angiographic results provided incremental prognostic information for each outcome. Thus, SPECT SSS provides information beyond clinical and angiographic data in patients who have known or suspected coronary artery disease. This information may be useful for stratifying patients into multiple risk categories for future cardiovascular events and potentially guiding therapy.
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Myocardial positron emission computed tomographic images obtained with fluorine-18 fluoro-2-deoxyglucose predict the response of idiopathic dilated cardiomyopathy patients to beta-blockers
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OBJECTIVES: The aim of this study was to elucidate whether the response of idiopathic dilated cardiomyopathy (DCM) patients to beta-blockers can be predicted by positron emission tomography with fluorine-18 fluoro-2-deoxyglucose (FDG-PET). BACKGROUND: Patients with DCM often have a poor prognosis, and it is important to predict their response to beta-blocker therapy, which may be effective in DCM. However, no accurate methods of predicting their response have been available. METHOD: In 22 DCM patients with reduced left ventricular (LV) systolic function, FDG-PET was performed. Uptake in the LV after glucose loading was evaluated based on the average global percent uptake of the injected dose (G%ID) and the coefficient of variance (CV) in 24 segments of the LV. Uptake during fasting was evaluated semiquantitatively on the basis of the total uptake score. The beta-blocker was administered, and LV function was monitored by echocardiography. The histologic findings were assessed in the 18 patients who underwent endomyocardial biopsy. RESULTS: The beta-blocker was effective in the majority of patients whose G%ID after glucose loading was >0.7%, and

the sensitivity and specificity of G%ID as a predictor of beta-blocker efficacy were 83.3% and 90.0%, respectively. Percent CV did not predict efficacy. Four groups, defined on the basis of the FDG uptake score during fasting and G%ID after glucose loading, had distinctive histologic findings and outcomes. CONCLUSIONS: It has been shown that FDG-PET is a good predictor for the effectiveness of beta-blockers.
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Heart (2004);90 Suppl 5:v16-25
Radionuclide imaging in risk assessment after acute coronary syndromes
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