Results: MDV in the apical region of the heart increased from a mean baseline value of 0.4 ± 0.1 mV to 0.9 ± 0.05 mV immediately after reperfusion and remained above 0.6 mV until day 3 post. From day 0 post MDV normalized except for a thin subendocardial rim in the apical region. High resolution ex-vivo scan of the removed heart confirmed the location of the rim enhancement seen in the MDV image to be subendocardial. TTC staining further confirmed that the rim enhancement was infarcted tissue. MDV in normal myocardium at the lateral free wall of the left ventricle was 0.4 ± 0.05 mV at all time points.

Conclusion: We confirmed from our preliminary results that ECG gated contrast-enhanced CT scanning is a promising and simple approach for studying myocardial damage from ischemia and its resolution with time.

869-6

Can Anatomic Noreflow Be Prevented by Pharmacologic Treatment With Adenosine and Verapamil?

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Objectives: The aim was to investigate the effects of intravenous adenosine and verapamil on anatomic no-reflow (ANR) in a rabbit model of coronary artery occlusion and reperfusion.

Background: Verapamil and adenosine have been successfully used in treatment of clinical no-reflow after acute angioplasty for acute myocardial infarction. However, whether these agents reduce anatomic no-reflow associated with myocardial necrosis, as it occurs in animal models of coronary occlusion and reperfusion, is unknown.

Methods: ANR (thrombin 5 at end of reperfusion), regional myocardial flow (RMBF, radioactive microspheres), and infarct size (IS, triphenyltetrazolium blue) were compared in anesthetized, oocn-chest rabbits (ischemia-reperfusion: 30-120 minutes) receiving intravenous adenosine at reperfusion (675 μg/kg bolus, then 175 μg/kg/min until the end of reperfusion) against controls (saline, n=8, each), and rabbits treated with intravenous verapamil at reperfusion (0 μg/kg bolus, then 150 μg/kg/h against saline, n=8, each).

Results: Both regimes significantly lowered systolic and diastolic blood pressure, reduced specific vascular resistance in the risk area (RA) (adenosine: -38.7% and -38.7% at 30 and 120 min of reperfusion, verapamil: -52.5% and -54.3% at 30 and 120 min of reperfusion), and verapamil increased RMBF within the risk area (verapamil: 45±7%, saline: 23±5% of non-ischemic flow at 120 min of reperfusion). IS (adenosine: 34±4%, saline: 39±6.2% of RA) and ANR (adenosine: 26±8%±2%, saline: 35±2±% of RA) were not significantly different in the adenosine protocol, and significantly correlated with each other (r=0.96). Similarly, verapamil did not result in significant changes in IS (verapamil: 42±5.6%, saline: 36±3.9% of RA) and ANR (adenosine: 37±6±%, saline: 34±9.5% of RA), which again showed a significant correlation (r=0.96). ANCOVA analysis revealed that neither treatment uncoupled ANR from IS.

Conclusion: Despite reducing vascular resistance within the RA, both adenosine and verapamil at reperfusion did not reduce ANR, suggesting that vasoconstriction is not a major contributor to anatomic perfusion defects in this experimental model.

ORAL CONTRIBUTIONS

872 The Old and the New: The ECG and Novel Biomarkers in Acute Coronary Syndromes

Wednesday, April 2, 2003, 8:30 a.m.-10:00 a.m.
McCormick Place, Room S404

872-1

Does the Presence of Electrocardiographic Left Ventricular Hypertrophy Predict One-Year Mortality in Non-ST Elevation Acute Coronary Syndromes?

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Background: Whereas electrocardiographic (ECG) left ventricular hypertrophy (LVH) predicts long-term morbidity in otherwise healthy people, its importance as a predictor of death in the setting of NSTE acute coronary syndromes (ACS) is not known.

Methods: Patients with ACS who were enrolled in the GUSTO III ACS trial and had baseline ECGs read in a blinded core laboratory. LV mass was assessed by Cornell voltage, which is the sum of the amplitude of the S wave in V3 and the R wave in lead V1. LVH was defined as Cornell voltage ≥ 26 mm in men and ≥ 22 mm in women.

Results: Baseline ECG data were available in 7443 (95%) of 7800 patients enrolled. LVH was present in 747 patients (10%). During follow-up, 260 patients (3.5%) died by 30 days and 574 (7.7%) by 1 year. ECG LVH tended to predict death at 30 days (4.4% vs. 3.4%, P=0.14), while it was associated with death at one year (12.2% vs. 7.2%, odds ratio = 1.78, 95% CI (1.41 to 2.25, P < 0.0001). There was increased risk of death with increasing Cornell voltage, especially in women. (Figure)

872-2

The Prognostic Value of ST-Segment Elevation in Lead AVR in Patients With a First Acute Myocardial Infarction Without Other ST Elevation

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Background: ST segment elevation (STE) in lead AVR has been associated with severe coronary lesions in patients with acute coronary syndromes, but the prognostic significance of this finding is unknown.

Methods: We analyzed the initial ECGs in 775 consecutive patients admitted to our center with a first acute myocardial infarction without STE. As the worse outcome predicted by STE the prognostic value of STE in lead AVR, we compared patients presenting with STE to those presenting without STE.

Results: Compared to the remaining patients, those with STE in lead AVR had a higher baseline risk profile and a more frequent and extensive ST segment depression in other leads. The rates of death and other in-hospital complications were strongly associated with the magnitude of STE in lead AVR, while CK-MB levels were not (Table). After adjustment for age, Killip class and presence and location of ST segment depression, the odds ratios for death in the last two groups shown in the table were, respectively, 5.6 (99% confidence interval: 2.1-14.3) and 1.5 (1.0-1.9). Among 451 patients cameraged within six months, those with STE in lead AVR had a lower left ventricular ejection fraction and a more extensive coronary artery disease.

Conclusion: Lead AVR carries independent prognostic information in patients with a first acute myocardial infarction without other STE. As the worse outcome predicted by STE in lead AVR appears to be related to a more severe coronary artery disease, an early invasive approach might be especially beneficial in these patients.