OBJECTIVES: We sought to assess the relationship between the Thrombolysis In Myocardial Infarction (TIMI) myocardial perfusion (TMP) grade and myocardial salvage as well as the usefulness of TMP grade in comparing two different reperfusion strategies. BACKGROUND: The angiographic index of TMP grade correlates with infarct size and mortality after thrombolysis for acute myocardial infarction (AMI). Its relationship to myocardial salvage and its usefulness in comparing different reperfusion strategies are not known. METHODS: We analyzed the TMP grade on angiograms obtained at one to two weeks after treatment in 267 patients enrolled in two randomized trials that compared stenting with thrombolysis in AMI. Patients were classified into two groups: 159 patients with TMP grade 2/3 and 108 patients with TMP grade 0/1. Two scintigraphic studies were performed: before and one to two weeks after reperfusion. The salvage index was calculated as the proportion of the area at risk salvaged by reperfusion. RESULTS: Patients with TMP grade 2/3 had a higher salvage index (0.49 +/- 0.42 vs. 0.34 +/- 0.49, p = 0.01), a smaller final infarct size (15.4 +/- 15.5% vs. 22.1 +/- 16.2% of the left ventricle, p = 0.001), and a trend toward lower one-year mortality (3.8% vs. 8.3%, p = 0.11) than patients with
TMP grade 0/1. The relationship between TMP and salvage index was independent of the form of reperfusion therapy. The proportion of patients with TMP grade 2/3 was significantly higher after stenting than after thrombolysis (70.9% vs. 48.1%, p = 0.001). CONCLUSIONS: These findings show that the TMP grade is a useful marker of the degree of myocardial salvage achieved with reperfusion and a sensitive indicator of the efficacy of reperfusion strategies in patients with AMI.