(BRAVE-3) trial. Moreover, abciximab increases the risk of adverse clinical outcomes, suggesting that it should not be added to standard antiplatelet therapy in this patient population.

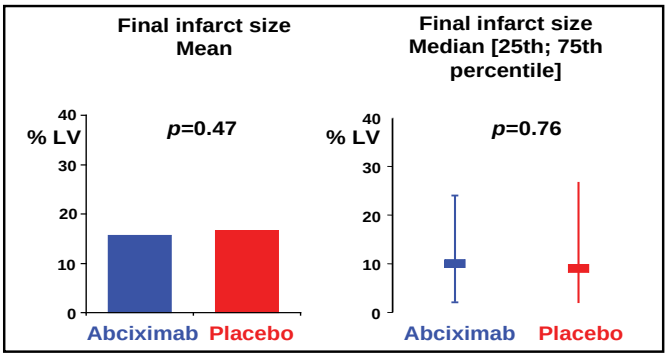
"Therapy without abciximab would certainly be more cost-effective and reduce the risk of bleeding complications," said lead author Julinda Mehilli, MD, Deutsches Herzzentrum, Technical University, Munich, Germany.

Prior studies in primary PCI suggested that antiplatelet therapy with intravenous glycoprotein IIb/IIIa inhibitors improved clinical outcomes in patients with acute STEMI, Dr. Mehilli said. Given the trend toward greater benefit with more robust platelet inhibition, BRAVE-3 was designed to evaluate whether the intravenous glycoprotein inhibitor abciximab reduces infarct size in patients with acute STEMI undergoing PCI following pretreatment with 600 mg clopidogrel, a dose that is higher than currently recommended in STEMI treatment guidelines.

BRAVE-3 enrolled 800 patients with acute STEMI who presented within 24 hours of symptom onset. After pretreatment with clopidogrel (600 mg), aspirin (500 mg), and unfractionated heparin (UFH) (5000 IU), patients were randomly assigned to therapy with abciximab (n=401) or placebo (n=399). Following PCI, all patients received additional treatment with clopidogrel 75 mg twice daily for 3 days, clopidogrel 75 mg once daily for at least 4 weeks, and aspirin 200 mg once daily indefinitely.

Abciximab did not provide additional reduction of the infarct size (the primary endpoint), which was expressed as a percentage of the left ventricle and measured 5-7 days after randomization. The final mean infarct size was similar in patients treated with abciximab and placebo (15.7% vs 16.6%, respectively; p=0.47; Figure 1).

Figure 1. Infarct Size Following Primary PCI With and Without Abciximab.



In the first 30 days following PCI, abciximab did not increase the rate of TIMI major bleeding compared with placebo (1.8% in both groups). However, abciximab did increase the rates of TIMI minor bleeding and thrombocytopenia

In summary, these findings suggest that abciximab on a background of 600 mg clopidogrel did not reduce infarct size in patients with STEMI undergoing primary PCI.

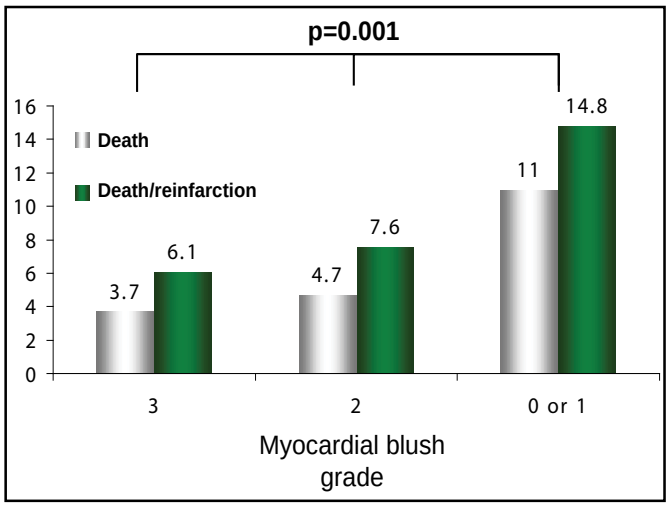
Two Studies Explore Ways to Improve Clinical Outcomes in STEMI

The findings of 2 studies have helped to identify ways to improve clinical outcomes of patients with ST-segment elevation myocardial infarction (STEMI) undergoing fibrinolysis or percutaneous coronary intervention (PCI). These studies provide answers about the role of thrombus aspiration before primary PCI and the role and optimal timing of routine PCI after fibrinolysis.

Thrombectomy typically is performed before primary PCI in patients with STEMI only when the clot is large. However, the TAPAS trial demonstrated that thrombus aspiration before PCI, regardless of the clot size, resulted in improved myocardial perfusion and better clinical outcomes. TAPAS was a single-center study that involved consecutive patients with STEMI who were randomly assigned to either manual aspiration of the thrombus and PCI (535 patients) or conventional PCI (536 patients). The primary measure of reperfusion was determined by the myocardial blush grade (MBG), and an MBG of 0 or 1 (defined as absent or minimal myocardial blush) was the primary endpoint.

Felix Zijlstra, MD, PhD, Thoraxcentre, University Medical Centre, Groningen, The Netherlands, reported that fewer patients who had thrombus aspiration compared with conventional PCI had an MBG of 0 or 1 (17% vs 26%; p<0.001). Thrombus aspiration also led to a significantly higher rate of complete resolution of ST-segment elevation, another measure of myocardial reperfusion (57% vs 44%; p<0.001). Through 30 days, thrombus aspiration tended to reduce the risk of death (RR 0.52; p=0.07), reinfarction (RR 0.40; p=0.11), target-vessel revascularization (RR 0.77; p=0.34), and major adverse cardiac events (RR 0.72; p=0.12). At one year, the rate of the composite endpoint (death and reinfarction) was significantly lower among patients who had thrombus aspiration (Figure 1). In addition, MBG was found to be a good predictor of clinical outcome; the one-year mortality rate was significantly lower for patients with an MBG of 3 than for patients with a MBG of 0/1 (3.7% vs 11%; p=0.001).

Figure 1. TAPAS One Year Outcome: Myocardial Blush Grade and Death or Death/Reinfarction at 1 Year.



The TRANSFER-AMI trial was designed to determine the optimal timing of PCI after fibrinolytic therapy for patients with STEMI. The study involved patients who initially presented to centers that did not have timely access to a catheterization laboratory. The patients were randomly assigned to one of 2 treatment strategies. The first group (522 patients) received a pharmacoinvasive approach that consisted of fibrinolytic therapy (standard-dose tenecteplase and aspirin [160-325 mg]) and transfer for PCI within 6 hours. The control group (508 patients) received the same fibrinolytic therapy, with rescue PCI performed only if necessary (ongoing chest pain and <50% resolution of ST-elevation at 60-90 minutes, or if the patient was hemodynamically unstable).

Warren J. Cantor, MD, St. Michael's Hospital, Toronto, Ontario, Canada, reported that the incidence of the primary endpoint (a composite of 30-day death, MI, heart failure, severe recurrent ischemia, or shock) in the pharmacoinvasive arm was about half of the rate observed with standard treatment (HR: 0.54, 95% CI, 0.37-0.73; p=0.0013). Evaluation of the individual elements of the endpoint showed that the rates of death, shock, and new or worsening heart failure were not significantly different in the two arms, while the rates of reinfarction and recurrent ischemia were lower in the pharmacoinvasive arm (Table 1). Thrombolysis in Myocardial Infarction (TIMI) major bleeding occurred at similar rates in the 2 arms (4.3% vs 4.6%; p=0.88). These findings support the strategy of transfer to a PCI center immediately after fibrinolysis, without waiting to see whether reperfusion is successful, said Dr. Cantor.

Table 1. Comparison of the Results for the 2 Treatment Arms in the TRANSFER-AMI Trial.

	Percentage of Patients		
	Pharmacoinvasive Strategy (n=522)	Standard Treatment (n=508)	p Value
Primary (composite) endpoint*	10.6	16.6	0.0013
Death	3.7	3.6	0.94
Reinfarction	3.3	6.0	0.044
Recurrent ischemia	0.2	2.2	0.019
Death/reinfarction/ ischemia	6.5	11.7	0.004
Heart failure (new or worsening)	2.9	5.2	0.069
Cardiogenic shock	4.5	2.6	0.11

*The primary endpoint was a composite of death, myocardial infarction, heart failure, severe recurrent ischemia, or cardiogenic shock.

Drug-Eluting Stents Found to Be Safe and Effective in Patients with MI

Research on drug-eluting stents (DES) has yielded conflicting data about the safety and efficacy of DES in patients with myocardial infarction (MI). Analysis of data from a large registry of stents suggested that DES are not associated with inferior clinical outcomes. In fact, adjusted rates of death, revascularization, and reinfarction were lower among patients who received a DES than among patients who received a bare-metal stent (BMS).

Laura Mauri, MD, MSC, Brigham and Women's Hospital, Boston, MA, reported on an observational study that involved the evaluation of patients who had a stent inserted for acute MI in the state of Massachusetts. Of the 7216 patients identified in the database, 4016 received a DES and 3200 received a BMS. Dr. Mauri explained that because there is a bias in selecting the type of stent for an individual patient, propensity score matching was done, and the patients in the 2 groups were matched on as many as 63 patient-, procedure-, and hospital-related variables. Data on 2629 patients in each group formed the basis of the analysis.

The researchers sought to determine if there was a signal of harm associated with DES in patients with acute MI. Dr. Mauri reported that the overall outcomes favored DES. Specifically, the 2-year, risk-adjusted mortality rate was significantly lower for patients with DES than for those with BMS (10.4% vs 13.2%; p=0.002). The rate of revascularization was also significantly lower in association with DES (15.5% vs 20.8%; p<0.001). The rate of reinfarction was lower, but the difference was not significant (9.5% vs 11%; p=0.08).