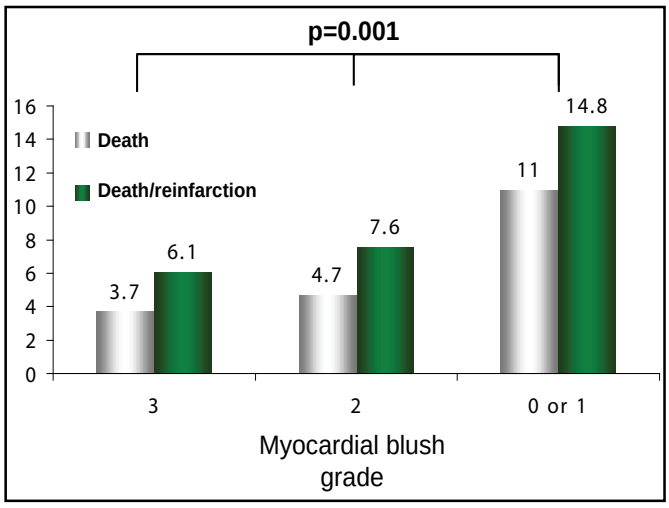
Figure 1. TAPAS One Year Outcome: Myocardial Blush Grade and Death or Death/Reinfarction at 1 Year.



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).

"These findings are reassuring," Dr. Mauri said. "Although neither bare-metal stents nor drug-eluting stents were originally approved in the setting of acute myocardial infarction, it is probably the most important condition that we treat with stents. This study confirms that the same benefits that DES offer other patients in preventing restenosis exist for patients with MI, and there doesn't appear to be any trade-off in increased risk of repeat MI or death." She added that patients with a DES must be able to take prolonged dual antiplatelet therapy with aspirin and a thienopyridine for one year.

Because patients with MI are at higher risk for late stent thrombosis than patients with stable angina, longer follow-up is needed to monitor the outcome over time. Dr. Mauri said that she and her colleagues plan to continue follow-up and re-examine the findings when more data are available.

Ongoing Telmisartan Alone and in Combination With Ramipril Global Endpoint Trial

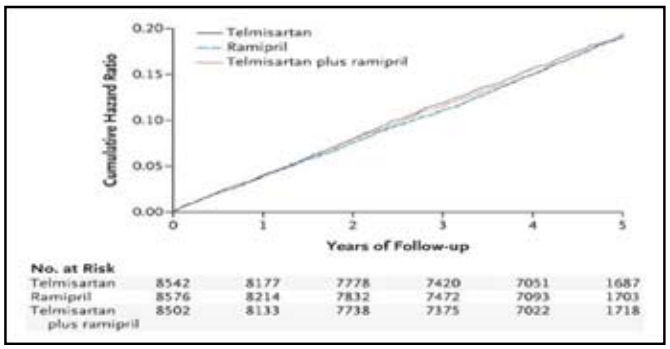
The angiotensin-receptor blocker (ARB) telmisartan is equally effective in reducing cardiovascular risk as the angiotensin-converting enzyme (ACE) inhibitor ramipril in patients with vascular disease or high-risk diabetes. However, the combination is no more effective than either drug alone and causes more side effects.

"Physicians and patients now have a choice as to whether to use telmisartan or ramipril," said Salim Yusuf, MD, McMaster University, Hamilton, Ontario, Canada, principal investigator of ONTARGET. "We can use telmisartan with confidence when we believe an ACE inhibitor is not tolerated," he said. Dr. Yusuf estimated that ACE intolerance affects "at least 20% to 30% of patients."

ONTARGET enrolled 25,620 patients with coronary heart disease or diabetes plus additional risk factors, but no evidence of heart failure. Patients were randomly assigned to treatment with ramipril 10 mg per day (n=8576), telmisartan 18 mg per day (n=8542), or the combination of ramipril and telmisartan (n=8502).

At a median follow-up of 56 months, a similar proportion of patients in each group reached the primary endpoint, a composite of death from cardiovascular causes, myocardial infarction (MI), stroke, or hospitalization for heart failure (Figure 1). Cardiovascular events were observed in 16.5% of patients in the ramipril group, compared with 16.7% in the telmisartan group (RR 1.01; 95% CI, 0.94-1.09) and 16.3% in the combination therapy group (RR 0.99; 95% CI, 0.92-1.07), suggesting that the three regimens were equally effective in preventing adverse cardiovascular outcomes.

Figure 1. Cardiovascular Events with Ramipril, Telmisartan, or Both.



Cough was the most common reason for discontinuation of therapy during ONTARGET (Table 1). Compared with the ramipril group, the telmisartan group had a lower rate of both cough (4.2% vs 1.1%; p<0.001) and angioedema (0.3% vs 0.1%; p=0.01). Patients in the telmisartan group were more likely than those in the ramipril group to report symptoms of hypotension (2.7% vs 1.7%; p<0.001), although both groups had a similar rate of syncope (0.2%). Patients in the combination group were much more likely than the ramipril group to discontinue therapy due to hypotensive symptoms (RR 2.75; p<0.001) and syncope (RR 1.95; p=0.03).

Table 1: Treatment Discontinuations with Ramipril, Telmisartan, or Both.

Variable	Ramipril (n=8576)	Telmisartan (n=(8542)	Combination Therapy (n=8502)	Telmisartan vs Ramipril		Combination Therapy vs Ramipril	
	number (percent)			RR	p Value	RR	p value
Total no. of discontinuations†	2099 (24.5)	1962 (23.0)	2495 (29.3)	0.94	0.02	1.20	<0.001
Reason for permanent discontinuation							
Hypotensive symptoms	149 (1.7)	229 (2.7)	406 (4.8)	1.54	<0.001	2.75	<0.001
Synocope	15 (0.2)	19 (0.2)	29 (0.3)	1.27	0.49	1.95	0.03
Cough	360 (4.2)	93 (1.1)	392 (4.6)	0.26	<0.001	1.10	0.19
Diarrhea	12 (0.1)	19 (0.2)	39 (0.5)	1.59	0.20	3.28	<0.001
Angioedema	25 (0.3)	10 (0.1)	18 (0.2)	0.4	0.01	0.73	0.30
Renal impairment	60 (0.7)	68 (0.8)	94 (1.1)	1.14	0.46	1.58	<0.001

†A patient could have multiple discontinuations, since patients were encouraged to restart study medications whenever possible after discontinuation.

Findings for the major secondary outcome, a composite of cardiovascular death, MI, or stroke (modeled after the primary outcome of the Heart Outcomes Prevention Evaluation (HOPE) trial), occurred in 14.1% of patients in