INTERVENTIONAL CARDIOLOGY

PCI after fibrinolysis: is timing everything?

Fibrinolysis can be used to treat patients with acute ST-segment elevation myocardial infarction (STEMI) when facilities for primary percutaneous coronary intervention (PCI) are not available. There is, however, no consensus as to whether patients benefit from undergoing PCI soon after fibrinolytic therapy, or if intervention can safely be delayed. The TRANSFER-AMI investigators have now demonstrated that PCI routinely carried out within 6 h of initial fibrinolytic therapy is associated with better patient outcomes than when PCI is deferred beyond this period of time.

Providing access to primary PCI for all patients with STEMI is challenging—only a quarter of acute care facilities in the US have PCI facilities. Fibrinolysis, therefore, has an

important role in the treatment of this condition. The results of early studies, which showed that patients derived no benefit or had worse outcomes with PCI performed soon after fibrinolysis, are no longer relevant in the current era because of developments in the treatment of STEMI. “Unlike studies that were carried out over 10 years ago, this trial utilized contemporary pharmacotherapy (including potent antiplatelet therapy at the time of fibrinolysis and during PCI) and contemporary PCI techniques (including routine coronary stenting),” says Dr Warren Cantor, one of the TRANSFER-AMI investigators.

This nonblinded, randomized, controlled trial was conducted across 52 treatment centers in Ontario, Manitoba, and Quebec in Canada. Between July 2004 and December 2007, a total of 1,059 individuals who presented within 12 h of the onset of STEMI symptoms were enrolled in the study. Patients with cardiogenic shock and those who had previously undergone PCI or CABG surgery were not eligible for inclusion. All participants were treated with tenecteplase, aspirin, and unfractionated heparin or enoxaparin at presentation. After April 2005, the use of clopidogrel was also recommended.

The investigators randomly assigned patients to urgent transfer for PCI ($n=537$) or to standard treatment ($n=522$), in which patients remained at the hospital for a minimum of 24 h with a recommendation to undergo PCI within 2 weeks. There was a higher incidence of prior congestive heart failure and a lower incidence of stroke or transient ischemic attack among patients who received standard treatment, but there were no other significant differences in baseline characteristics between the two groups.

PCI was performed in 84.9% of patients in the

early-PCI group and in 67.4% of those in the standard-treatment group (median 3.2 h and 21.9 h after randomization, respectively). In addition, 34.9% of participants assigned to standard treatment, who had persistent ST-segment elevation, persistent chest pain or hemodynamic instability, underwent rescue PCI within 12 h. The incidence of death, reinfarction, recurrent ischemia, heart failure, or cardiogenic shock at 30 days after randomization was significantly higher in the standard-treatment group than in the early-PCI group (17.2% vs 11.0%, respectively). Notably, with the exception of mild bleeding events, there was no significant difference in the rate of adverse events between the two treatment strategies. “Although we expected that routine early PCI would result in a lower rate of ischemic complications, we were surprised by the magnitude of the benefit, particularly given the high rate of PCI in the control group,” remarks Dr Cantor. “We were also very reassured that there was no signal of increased major bleeding with the routine early PCI group.”

The researchers highlight the importance of distinguishing PCI performed within a few hours of fibrinolytic therapy from ‘facilitated PCI’. The latter strategy involves fibrinolysis followed by immediate intervention, which has been associated with excess bleeding and produces no clinical benefit. From the reported findings, it could be hypothesized that there is an ideal ‘window of opportunity’ in which PCI should be performed—neither too soon nor too late after fibrinolysis. Dr Cantor and colleagues now plan to carry out “additional analyses that may shed further light on the optimal timing of early PCI after fibrinolysis. This is particularly relevant when patients are transferred outside of regular working hours,” he concludes.

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