PCI Reduces Infarct Size 12+ Hours After Event

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ORLANDO, FLA. — Prompt percutaneous intervention in acute MI patients who present more than 12 hours after onset of chest pain and are no longer symptomatic results in significantly reduced final infarct size, compared with standard medical management, according to the findings of the first randomized trial of an acute invasive strategy in such patients.

These late presenters make up roughly 20% of all acute MI patients. Current American College of Cardiology/American Heart Association guidelines don't recommend mechanical or fibrinolytic reperfusion in late presenters unless they show up with a stuttering course and persistent pain. But the guidelines ought to be changed in light of this new evidence supporting the benefit of mechanical reperfusion in asymptomatic patients—even when applied late, Adnan Kastrati, M.D., said at the annual meeting of the American College of Cardiology.

It's plausible that late restoration of high-grade coronary blood flow, achieved by mechanical reperfusion, might revive hibernating myocardium.

He presented the results of the Beyond 12 Hours Reperfusion Alternative Evaluation (BRAVE-2) trial. The study involved 365 acute MI patients who had become asymptomatic by the time they presented 12-48 hours after onset of chest pain. Participants were randomized to prompt percutaneous intervention or standard medical therapy at 16 medical centers in Germany, Italy, and Austria.

The primary end point in BRAVE-2 was infarct size as determined by technetium-99m sestamibi scintigraphy 5-10 days post randomization. The scans showed the infarct involved a mean 8% of the left ventricle in patients who underwent mechanical reperfusion, significantly less than the 13% in those managed medically, said Dr. Kastrati of the German Heart Center, Munich.

The secondary study end point, the 30-day combined rate of all-cause mortality or recurrent MI, was 4% in the invasive group and 6% in those managed conservatively, a nonsignificant difference. The disparity in the 30-day incidence of unplanned percutaneous intervention was far more dramatic: 1% in the invasive group vs. 33% in those who were managed conservatively.

Cindy L. Grines, M.D., a member of the task force responsible for the ACC/AHA guidelines for management of acute MI, said the reason for the recommendation that reperfusion therapy generally be given only within 12 hours of symptom onset is the persuasive evidence from fibrinolytic clinical trials that the benefit drops off sharply when this therapy is applied more than a few hours after MI onset. The same phenomenon has been shown in animal studies.

However, BRAVE-2 shows a "pretty striking" reduction in infarct size, and it's certainly plausible that late restoration of high-grade coronary blood flow—readily achievable with mechanical reperfusion but not with thrombolytic therapy—might revive hibernating myocardium as one potential explanation for this benefit, said Dr. Grines of William Beaumont Hospital in Royal Oak, Mich.

Before the guidelines are changed, however, it will be important to see a confirmatory study, preferably one that addresses the question of whether all asymptomatic late presenters ought to go to the catheterization laboratory, or just those who have larger infarcts. Another key question concerns how quickly these late presenters need to undergo mechanical reperfusion.

Noting that the mean time from randomization to coronary angiography in BRAVE-2 was a mere 1.5 hours, Dr. Grines commented, "I don't know about you, but I don't routinely get out of bed at 2 in the morning to do angioplasty in patients who are 36 hours into their infarct and totally asymptomatic. It would be nice to have some additional information from trials as to which patients are likely to benefit with a reduction in infarct size."

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