

Should patients with cardiogenic shock receive culprit lesion only PCI or multivessel PCI?

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Results from the prospective, randomized, multicenter CULPRIT-SHOCK trial found that an initial strategy of culprit lesion only percutaneous coronary intervention (PCI) reduces the composite of 30-day mortality and/or severe renal failure in patients with multivessel disease and cardiogenic shock complicating acute myocardial infarction.

Findings were reported today at the 29th annual Transcatheter Cardiovascular Therapeutics (TCT) scientific symposium. Sponsored by the Cardiovascular Research Foundation (CRF), TCT is the world's premier educational meeting specializing in interventional cardiovascular medicine. The study was also simultaneously published in *The New England Journal of Medicine*.

In [acute myocardial infarction](#) complicated by cardiogenic [shock](#), early revascularization of the [culprit](#) artery by PCI improves outcomes. However, most cardiogenic shock patients present with multivessel disease, and the best revascularization strategy for non-culprit arteries is unknown, with some guidelines favoring more complete revascularization in these patients.

The CULPRIT-SHOCK clinical trial randomized 706 patients with multivessel disease and cardiogenic shock to either culprit lesion only PCI, with the option of staged revascularization, or immediate multivessel PCI. The primary efficacy endpoint was 30-day mortality or

severe renal failure requiring renal replacement therapy. Safety endpoints included assessment of bleeding and stroke. Approximately half of enrolled patients had been resuscitated prior to randomization, 62% presented with STEMI, and 28% received some form of hemodynamic support.

The rate of the primary composite endpoint was significantly lower in [patients](#) assigned to culprit lesion only PCI compared to immediate multivessel PCI (45.9% vs. 55.4%; RR 0.83; 95% CI 0.71-0.96; P=0.01). There was a significant difference between study groups with respect to all-cause mortality (43.3% vs. 51.5%; RR 0.84; 95% CI 0.72-0.98, P=0.03), while the difference in the rates of renal replacement therapy was not statistically significant (11.6% vs. 16.4%, RR 0.71; 95% CI 0.49-1.03, P=0.07). There were no significant differences in the time to hemodynamic stabilization, length of intensive care unit stay, or requirement for and duration of catecholamine therapy.

"Cardiogenic shock during myocardial infarction is a relatively rare, but extremely dangerous condition, in which the heart is unable to pump enough blood to meet the body's needs," said Holger Thiele, MD, Director of the Heart Center Leipzig - University Hospital in Leipzig, Germany. "Not only is CULPRIT-SHOCK the largest randomized trial in cardiogenic shock, it is also the first randomized trial to assess a strategy of multivessel PCI versus culprit vessel only PCI with the option of staged revascularization in this patient population. Based on these 30-day results, culprit vessel only PCI reduces mortality or severe renal failure."

Provided by Cardiovascular Research Foundation

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