

The New England Journal of Medicine

Complete Revascularization with
Multivessel PCI for Myocardial Infarction

Shamir R Mehta , David A Wood, Robert F Storey , Roxana Mehran , Kevin R Baine , Helen Nguyen , Brandi Meeks, Giuseppe Di Pasquale, Jose López-Sendón, David P Faxon , Laura Mauri, Sunil V Rao, Laurent Feldman, P Gabriel Steg , Álvaro Avezum , Tej Sheth , Natalia Pinilla-Echeverri , Raul Moreno, Gianluca Campo, Benjamin Wrigley, Sasko Kedev, Andrew Sutton, Richard Olive , Josep Rodés-Cabau , Goran Stanković , Robert Welsh, Shahar Lavi , Warren J Cantor, Jia Wang , Juliet Nakamya , Shirking I Bangdiwala , John A Cairns, COMPLETE Trial Steering Committee and Investigators

Vol. 381, NO. 15, October 10, 2019

DOI: [10.1056/NEJMoa1907775](https://doi.org/10.1056/NEJMoa1907775)

Abstract

Background:

In patients with ST-segment elevation myocardial infarction (STEMI), percutaneous coronary intervention (PCI) of the culprit lesion reduces the risk of cardiovascular death or myocardial infarction. Whether PCI of nonculprit lesions further reduces the risk of such events is unclear.

Methods:

We randomly assigned patients with STEMI and multivessel coronary artery disease who had undergone successful culprit-lesion PCI to a strategy of either complete revascularization with PCI of angiographically significant nonculprit lesions or no further revascularization. Randomization was stratified according to the intended timing of nonculprit-lesion PCI (either during or after the index hospitalization). The first coprimary outcome was the composite of cardiovascular death or myocardial infarction; the second coprimary outcome was the composite of cardiovascular death, myocardial infarction, or ischemia-driven revascularization.

Results:

At a median follow-up of 3 years, the first coprimary outcome had occurred in 158 of the 2016 patients (7.8%) in the complete-revascularization group as compared with 213 of the 2025 patients (10.5%) in the culprit-lesion-only PCI group (hazard ratio, 0.74; 95% confidence interval [CI], 0.60 to 0.91; $P = 0.004$). The second coprimary outcome had occurred in 179 patients (8.9%) in the complete-revascularization group as compared with 339 patients (16.7%) in the culprit-lesion-only PCI group (hazard ratio, 0.51; 95% CI, 0.43 to 0.61; $P < 0.001$). For both coprimary outcomes, the benefit of complete revascularization was consistently observed regardless of the intended timing of nonculprit-lesion PCI ($P = 0.62$ and $P = 0.27$ for interaction for the first and second coprimary outcomes, respectively).

Conclusions:

Among patients with STEMI and multivessel coronary artery disease, complete revascularization was superior to culprit-lesion-only PCI in reducing the risk of cardiovascular death or myocardial infarction, as well as the risk of cardiovascular death, myocardial infarction, or ischemia-driven revascularization. (Funded by the Canadian Institutes of Health Research and others; COMPLETE ClinicalTrials.gov number, NCT01740479.).

N Engl. J Med

2019 Oct 10; 381(15):1411-1421

Epub 2019 Sep 1

Doi: 10.1056/NEJMoa1907775

PMID: 31475795