

Physiology-guided complete revascularization benefits older myocardial infarction patients

August 28 2023



Credit: Pixabay/CC0 Public Domain

Physiology-guided complete revascularization reduces ischemic events compared with culprit-only revascularization in myocardial (MI) infarction patients aged 75 years or older with multivessel disease, according to late breaking research presented in a Hot Line session August 26 at [ESC Congress 2023](#).

Acute coronary syndrome patients aged 75 years or older are often underrepresented in [clinical trials](#) and management is challenging due to a lack of robust evidence. For example, complete revascularization is well established in [younger patients](#) but its impact in [older patients](#), who have a higher risk of complications, is uncertain.

Guidelines reflect this lack of data, with no specific recommendations on the type of revascularization for older myocardial infarction patients with multivessel disease. ESC guidelines state that routine revascularization of non-culprit lesions should be considered in ST-segment elevation MI (STEMI) patients with multivessel disease before hospital discharge. For non ST-segment elevation MI (NSTEMI), ESC guidelines recommend applying the same interventional strategies in older patients as for younger patients.

To address this knowledge gap, the FIRE trial examined whether complete revascularization based on coronary physiology is superior to a culprit-only strategy in older patients with MI and multivessel disease. Patients were eligible if they were at least 75 years old, had been admitted to hospital with STEMI or NSTEMI, had undergone successful percutaneous coronary intervention (PCI) of the culprit lesion, and had multivessel disease with at least one lesion in a non-culprit coronary artery with a minimum vessel diameter of 2.5 mm and a visually estimated diameter stenosis of 50%–99%.

After successful treatment of the culprit lesion, patients were randomized to culprit-only treatment or to physiology-guided complete

revascularization. Patients in the physiology-guided complete revascularization group received (1) physiological assessment using wire-based and angiography-based measurements and (2) PCI of all functionally significant non-culprit lesions. Both physiological assessment and PCI of non-culprit lesions were allowed during either the index intervention or in a staged procedure within the index hospitalization. Patients in the culprit-only revascularization group did not undergo any physiological assessment or revascularization of non-culprit lesions.

The primary outcome was a composite of death, MI, stroke, or ischemia-driven coronary revascularization occurring within one year of randomization. A key secondary outcome was the one-year composite endpoint of cardiovascular death or MI. Other secondary outcomes included the individual components of the primary outcome. The safety outcome was a composite of contrast-associated [acute kidney injury](#), stroke, or bleeding (Bleeding Academic Research Consortium [BARC] type 3 or 5) within one year of randomization.

The trial enrolled 1,445 patients from 34 sites in Italy, Spain and Poland. The median age was 80 years and 36.5% were women. The primary outcome occurred in 113 patients (15.7%) in the physiology-guided complete revascularization group and 152 patients (21.0%) in the culprit-only group (hazard ratio [HR], 0.73; 95% confidence interval [CI], 0.57 to 0.93; $p=0.01$). The number needed to treat to prevent the occurrence of one primary outcome event was 19 patients.

The key secondary outcome of cardiovascular death or MI appeared to be lower in the physiology-guided complete revascularization group (HR, 0.64; 95% CI, 0.47 to 0.88). The number needed to treat to prevent one cardiovascular death or MI was 22 patients. With the exception of stroke, each component of the primary outcome appeared to be lower in the physiology-guided complete revascularization group, including death

(HR, 0.70; 95% CI, 0.51 to 0.96), and the number needed to treat to prevent one death was 27 patients. There was no apparent difference between the two groups in the incidence of the composite safety outcome, with a HR of 1.11 for physiology-guided complete revascularization versus culprit-only revascularization (95% CI, 0.89 to 1.37; $p=0.37$).

Principal investigator Dr. Simone Biscaglia of University Hospital Santa Anna, Ferrara, Italy said, "The FIRE trial provides much needed data on the safety and efficacy of physiology-guided complete revascularization in older MI patients with multivessel disease. The reduction of the primary endpoint with physiology-guided complete revascularization was mainly driven by hard endpoints such as death and myocardial infarction. The results suggest that in older MI patients with multivessel disease, complete revascularization guided by physiology should be routinely pursued."

Provided by European Society of Cardiology

Citation: Physiology-guided complete revascularization benefits older myocardial infarction patients (2023, August 28) retrieved 3 May 2024 from <https://medicalxpress.com/news/2023-08-physiology-guided-revascularization-benefits-older-myocardial.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.