

Effect of Evolocumab on Complex Coronary Disease Requiring Revascularization



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ABSTRACT

OBJECTIVES This study sought to evaluate the ability of the proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitor evolocumab to reduce the risk of complex coronary atherosclerosis requiring revascularization.

BACKGROUND PCSK9 inhibitors induce plaque regression and reduce the risk of coronary revascularization overall.

METHODS FOURIER (Further Cardiovascular Outcomes Research with PCSK9 Inhibition in Subjects with Elevated Risk) was a randomized trial of the PCSK9 inhibitor evolocumab versus placebo in 27,564 patients with stable atherosclerotic cardiovascular disease on statin therapy followed for a median of 2.2 years. Clinical documentation of revascularization events was blindly reviewed to assess coronary anatomy and procedural characteristics. Complex revascularization was the composite of complex percutaneous coronary intervention (PCI) (as per previous analyses, ≥ 1 of: multivessel PCI, ≥ 3 stents, ≥ 3 lesions treated, bifurcation PCI, or total stent length >60 mm) or coronary artery bypass grafting surgery (CABG).

RESULTS In this study, 1,724 patients underwent coronary revascularization, including 1,482 who underwent PCI, 296 who underwent CABG, and 54 who underwent both. Complex revascularization was performed in 632 (37%) patients. Evolocumab reduced the risk of any coronary revascularization by 22% (hazard ratio [HR]: 0.78; 95% CI: 0.71 to 0.86; $p < 0.001$), simple PCI by 22% (HR: 0.78; 95% CI: 0.70 to 0.88; $p < 0.001$), complex PCI by 33% (HR: 0.67; 95% CI: 0.54 to 0.84; $p < 0.001$), CABG by 24% (HR: 0.76; 95% CI: 0.60 to 0.96; $p = 0.019$), and complex revascularization by 29% (HR: 0.71; 95% CI: 0.61 to 0.84; $p < 0.001$). The magnitude of the risk reduction with evolocumab in complex revascularization tended to increase over time (20%, 36%, and 41% risk reductions in the first, second, and beyond second years).

CONCLUSIONS Adding evolocumab to statin therapy significantly reduced the risk of developing complex coronary disease requiring revascularization, including complex PCI and CABG individually. (Further Cardiovascular Outcomes Research with PCSK9 Inhibition in Subjects with Elevated Risk (FOURIER); [NCT01764633](https://clinicaltrials.gov/ct2/show/study/NCT01764633).)

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