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Editorial

Prognostic Impact of Statins in Patients with Chronic Total Occlusion

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▸ See the article "Long-term Survival Benefit of Statin in Patients with Coronary Chronic Total Occlusion without Revascularization " in volume 33, e134.

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Since its introduction by Gruntzig,[1] percutaneous coronary intervention (PCI) has become a common treatment strategy for coronary artery disease. However, the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial and other meta-analyses showed that PCI did not reduce the risk of death, myocardial infarction, or other major cardiovascular events, when added to optimal medical therapy.[2,3] Improvements in guidewires, devices, and other imaging modalities have enabled PCI to be a useful tool in the treatment of coronary chronic total occlusion (CTO). Recent guidelines recommend that PCI for CTO is reasonable (class IIa) in patients with appropriate indications and suitable anatomy.[4] However, some data revealed that in this CTO subgroup, successful PCI did not reduce major adverse cardiac events including cardiac death compared with optimal medical therapy.[5] Although the success rate of revascularization for CTO has increased with advances in technology, approximately 20%–30% of CTO cases are not revascularized using PCI methods. Optimal medical treatment is very important, especially in patients who do not undergo revascularization. There are limited data on which drug optimally improves clinical outcomes for these patients. The study by Kim et al.[6] is therefore meaningful and interesting. They investigated the association between statin therapy and clinical outcomes in stable coronary CTO without revascularization. They showed that statin therapy was associated with a low risk of cardiac death and was also an independent predictor of cardiac death.[6] Plausible explanations for these results are as follows. First, the most important mechanism is the effect of statin therapy on the progression of coronary atherosclerosis. A meta-analysis by Tian et al.[7] revealed that statin therapy can significantly reduce plaque volume in patients with coronary artery disease and suggested that statins can be used to reduce the atheroma burden for secondary prevention. Statins can inhibit the progression of plaque in non-CTO vessels that serve as donors for collateral circulation and decrease ischemic burden. These effects of statins may translate to better clinical outcomes. Second, in addition to decelerating the progression of atherosclerosis, statins have pleotropic effects.[8] These include enhancement of antiarrhythmic effects, antioxidant properties, inhibition of inflammatory responses, and immunomodulatory activity. The pleotropic effect of statins on the cardiovascular system may play an important role. According to current American Heart Association/American College of Cardiology guidelines, high-dose statin therapy is very beneficial in selected high-risk patients. As mentioned by Kim et al.,[6] the intensity or duration of statin therapy in CTO patients may also be very important. The study findings make important clinical implications.

They suggest that statins may produce the best clinical outcomes or reduce mortality in CTO patients without revascularization. We expect that randomized controlled trials evaluating the efficacy of statin therapy may confirm this retrospective finding and that a study on the intensity or duration of statin therapy will be performed.

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