A predictors for 10-year mortality and clinical events in patients with chronic coronary total occlusion lesion

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Background: Despite advances in cardiovascular intervention techniques and devices, the treatment of patients with chronic coronary total occlusion CTO lesions is challenging yet. We evaluated predictors of 10-year mortality and clinical events in patients with CTO lesions in this study.

Methods: This study is a single-center, prospective, all-comer registry designed to reflect "real world" practice since 2001. Of a total of 1,672 consecutive patients were diagnosed with CTO lesions by coronary angiogram. The primary endpoints were all-cause death or major adverse cerebral and cardiac events (MACCE) defined as the composite of all-cause death, myocardial infarction (MI), any coronary revascularization, and stroke up to 10 years. We derived for final results, from survival analysis by Kaplan-Meier and Cox-proportional regression analysis.

Results: In this study, males were 1,255 (75.1%), and the mean age was 65.2±10.9. Also, a total of 660 patients had received a successful PCI for CTO lesions at enrollment. A total of 267 patients was heart failure. Ten years of clinical follow, MACCE occurs in 407 cases (56.6%), all-cause death in 152 cases (18.5%), cardiac death in 87 cases (9.9%), myocardial infarction (MI) in 54 cases (7.7%), any revascularization of 251 cases (30.7%), and stroke of 41 cases (6.3%) by Kaplan-Meier analysis. In a multiple Cox-proportional regression analysis, a prior myocardial infarction, reduced LV ejection fraction less than 50%, chronic kidney disease, multi-vessel disease had increased a risk of MACCE and the use of statin, and aspirin had reduced a risk of MACCE. Also, an aging, prior MI, reduced LV ejection fraction less than 40%, and multi-vessel disease had increased a risk of all-cause death and the use of statin, renin-angiotensin system inhibitors, nitrates, statin, and aspirin had reduced a risk of MACCE. However, PCI for CTO lesions could not reduce both of MACCE and all-cause death.

Conclusions: The study found that a prior myocardial infarction, reduced LV ejection fraction, chronic kidney disease, and multi-vessel disease were associated with an increased risk of MACCE, while the use of statins and aspirin reduced the risk of MACCE. Furthermore, PCI for CTO lesions did not reduce the incidence of MACCE or all-cause death. These findings highlight the need for further research and development of more effective treatment strategies for patients with CTO lesions.