Feasibility and Safety of Reversed Wire Technique in Coronary Chronic Total Occlusion Interventions

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OBJECTIVE

The aim of the study was to examine feasibility and safety of reverse wire technique (RWT) in facilitating CTO PCI success.

MATERIALS AND METHODS

Among 857 CTO PCI cases done between January 2013 until December 2016, RWT was used in 104 patients. Out of them, 70 patients with complete imaging of the process were included and analyzed. The process involved advancing the reversed wire system into a side branch. After adjusting the position of the system, the reversed guidewire was then steered back to pass into the target vessel. In this study, using quantitative coronary angiography (QCA), we examined whether; vessel reference diameter, CTO length as well as the angle between the main vessel and a side branch had an impact on RWT procedure success.

Target CTO lesions were LAD in 31 patients (44%), LCX in 12 patients (17%) and RCA in 27 patients (39%). RWT success was achieved in 47 patients (67%). The main reasons of failure were inability to catch the CTO vessel with the reversed wire (8 patients, 11%) as well as failure to straighten the reversed wire after catching the target vessel (12 patients, 17%). With additional antegrade and/or retrograde techniques, PCI procedure success was achieved in 66 out of 70 patients (94%) with only one side branch occlusion related to RWT process. None of the studied QCA variables was predictive of procedure success.

CONCLUSION

Reversed wire technique was considered feasible, safe and could be an option to facilitate wire crossing of target coronary chronic total occlusion.