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Impact of intimal tracking for recanalization of CTO lesions on long-term clinical outcomes

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Background: For recanalization of coronary chronic total occlusion (CTO) lesions, subintimal guidewire tracking in both antegrade and retrograde approaches are commonly used.
Purpose: This study aimed to assess the impact of subintimal tracking on long-term clinical outcomes after recanalization of CTO lesions.
Methods: Between January 2009 and December 2016, 474 CTO lesions (434patients) were successfully recanalized in our center. After guidewire crossing in a CTO lesion, those lesions were divided into intimal tracking group (84.6%, n=401) and subintimal tracking group (15.4%, n=73) according to intravascular ultrasound (IVUS) findings. Long-term clinical outcomes including death, target lesion revascularization (TLR), target vessel revascularization (TVR) were compared between the two groups. In addition, the rate of re-occlusion after successful revascularization was also evaluated.
Results: The median follow-up period was 4.7 years (interquartile range, 2.8–6.1). There was no significant difference of the rate of cardiac death between the two groups (intimal tracking vs. subintimal tracking: 7.0% vs. 4.1%; hazard ratio, 0.61; 95% confidence interval [CI], 0.19 to 2.00; p=0.41), TLR (14.3% vs. 16.2%; hazard ratio, 1.34; 95% CI, 0.71 to 2.53; p=0.37), and TVR (17.5% vs. 20.3%; hazard ratio, 1.27; 95% CI, 0.72 to 2.23; p=0.42). However, the rate of re-occlusion was significantly higher in the subintimal tracking group than intimal tracking group at 3-years re-occlusion (4.2% vs. 14.5%; log-rank test, p=0.002, Figure). In the multivariate COX regression, subintimal guidewire tracking was an independent predictor of re-occlusion after CTO recanalization (HR: 5.40; 95% CI: 2.11–13.80; p<0.001).
Conclusions: Subintimal guidewire tracking for recanalization of coronary CTO was associated with significantly higher incidence of target lesion re-occlusion during long-term follow-up period.

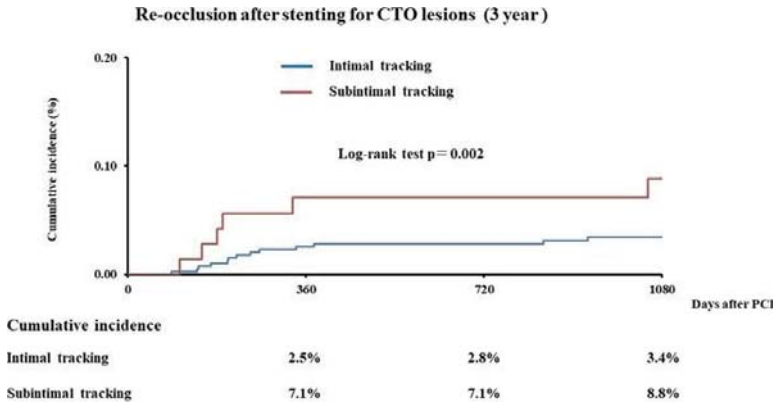

Figure 1