Long-Term (4-Year) Clinical Outcomes of Total Occlusions and Completeness of Revascularisation in the Synergy Between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery Trial

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Background: The impact of successful chronic total occlusion (TO) recanalisation and completeness of revascularisation after PCI on long-term survival remains unsettled.

Methods: Within the All-Comers SYNTAX Trial (n = 26368), the PCI and CABG arms were stratified by the presence of TOs and complete (CR) vs. incomplete (ICR) revascularisation. Clinical outcomes (Kaplan-Meier) were analysed with log-rank and Cox regression analyses.

Results: In the randomised population, recanalisation/bypass rates of 49.4% (PCI) vs. 68.1% (CABG) were reported. In the All-Comers population, 840 patients (PCI: 26.3%, CABG: 36.4%, p < 0.001) with 1087 TOs were identified. The presence of TOs was significantly associated with less CR by PCI (CR: TO 34.3%, p < 0.001) with 1007 TOs were identified. The presence of a TO was the strongest independent predictor of ICR after PCI (Hazard Ratio [95% CI]: 2.85 [2.09, 3.87], p < 0.001). Regardless of the presence of a TO in the PCI & CABG arms, CR (compared to ICR) was associated with significant reductions in 4-year mortality, all-cause revascularisation, and MACCE. Four-year stent thrombosis rates in the PCI arm were significantly lower with CR (3.7%) vs. ICR (6.5%, p = 0.046), an effect that was more pronounced in the TO group.

Conclusions: Within the PCI and CABG arms of the All-Comers SYNTAX Trial – and specifically in patients with TOs – whatever the acceptable threshold of revascularisation is appropriate for an individual patient, the identification of ICR (compared to CR) using the SYNTAX Trial definition identifies patients who have an adverse longer-term prognosis.

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Total Chronic Occlusions in Sweden – Report from the Swedish Coronary Angiography and Angioplasty Registry (SCAAR)

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Background: Interventions on chronic total occlusions (CTO) demand expert operator skills, longer procedural time and are more frequently associated with complications. Current guidelines for percutaneous coronary interventions (PCI) for CTO are based on small retrospective studies and expert opinions. Consequently, there is a necessity to strengthen such a recommendation with more evidence. The aim of this study was to report and describe prevalence, demographics, clinical characteristics, treatment decisions and trends in reporting on CTO at the level of one whole nation using data from the Swedish Coronary Angiography and Angioplasty Registry (SCAAR).

Methods: SCAAR contains data on all consecutive patients who undergoes coronary angiography or PCI in Sweden since 1989. Diagnosis of CTO in SCAAR is based on two variables. The first variable is PCI physician’s mandatory evaluation of whether the treated occluded segment is more than three months old. The second variable is a non-mandatory reporting of lesions % stenosis in coronary artery segments.

Results: In January 2012, the SCAAR registry consisted of 497,572 procedures performed in 348,863 patients. In total, 29,571 patients with a CTO were identified. A CTO was observed in 10.9% of all performed procedures. In patients with significant coronary lesions, a CTO was seen in 15.9%. CTO patients had more cardiovascular risk factors and more extensive coronary artery disease. The majority of CTO patients were treated conservatively and PCI recanalization of CTO is performed only in 5.8% of all procedures. Revascularized CTO patients were younger and had more severe symptoms while CTO patients with diabetes and multivessel disease were more likely to be referred to CABG.

Conclusions: SCAAR is the largest data base of CTO patients to date. CTO is a frequent finding in patients undergoing coronary angiography in Sweden and the number of CTO procedures has been constant over the last 13 years. SCAAR may be a valuable source of relevant clinical data in the process of building the real world evidence for the guidelines regarding the optimal treatment of CTO patients.