Design and rationale of the drug-coated balloon coronary angioplasty versus stenting for treatment of disease adjacent to a chronic total occlusion **(Co-CTO)** trial
*Supplemental material*

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**Brief title:** Co-CTO trial design

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# CCTA scanner characteristics and scanning protocol

CCTA imaging is acquired with a 192-slice dual-source CT (DSCT) system (Somatom Force, Siemens Medical Solutions, Forchheim, Germany) with a collimation of 2 × 192 × 0.6 mm, using a flying focal spot technique and a gantry rotation time of 250 ms. A high-pitch spiral acquisition protocol will be used with a fixed pitch of 3.2, corresponding to a table movement of 7.37 m/s. Automatic tube voltage modulation and exposure control for tube current will be used, depending on patient characteristics. Images will be reconstructed using an iterative reconstruction technique (ADMIRE; Siemens Medical Solutions, Forchheim, Germany). The reconstruction parameters are: slice thickness 0.6 mm, increment 0.5 mm and Bv40 kernel. All CCTA high-pitch acquisitions will be performed with prospective ECG-triggering, with variable padding dependent on HR. For visualization of the coronary artery lumen a variably diluted bolus of 100 ml iobitidol (Xenetix 350) will be injected intravenously (5 mL/s), dependent on chosen tube voltage, followed immediately by a 50 mL saline chaser. The scan is triggered using an automatic bolus tracking technique, with a region of interest (ROI) placed in the descending thoracic aorta and a threshold of 100 HU. Metoprolol 100 mg will be administered orally for patients with a pre-scan HR > 65 bpm one hour before start of the CT protocol. If necessary, 5 to 20 mg metoprolol will be given intravenously during the scan to achieve a heart rate < 65 bpm. Each patient receives 400 to 800 mcg of sublingual nitroglycerine immediately before CCTA. The analysis of all CCTA imaging will be performed offline with commercially available software and by an independent dedicated corelab. Relevant parameters include (but are not limited to): %DS, in-segment binary restenosis, target vessel re-occlusion, volumetric plaque measurements, calcified and non-calcified plaque morphology, low attenuation plaque, and absent or spotty calcification.