High Success Rate in Recanalization of Chronic Total Occlusions with a Novel Guidewire Principle Using the Guidance of Micro Channels

Background: Vascular micro channels (MC) in chronic total occlusions (CTO) may guide recanalization wires and improve success rates. The new ALC Cross-II-OX1 guidewire family has distal tip tapering from 0.014" to 0.010" that eases entrance into MC. Tip stiffness increases gradually from the 100XT-wire to the 400XT-wire.

Methods: We included 204 consecutive pts with 214 CTO. Age of occlusion was 1–20 years and occlusion length 24±13–80 mm. MC as visible on cineangiography were none in 37% (MC 0), incomplete in 26% (MC 1), complete in 14% (MC 2) and complete with distal capillary refill in 25% (MC 3). In all lesions the first attempt was done with the 100XT-wire trying carefully to stay within MC. If necessary tip stiffness was step-wise increased to the 400XT-wire.

Results: Success rates for crossing the occlusion were 61% for the 100XT-wire, 76% for all Cross-I/OX-wires and 82% including other additional wires types. Wire success was dependent on visibility and completeness of MC (Figure 1). If MC were visible 65% to 81% of occlusions could be passed with the 100XT-wire. Vessel success rate was 79%. In hospital events were periarterial tamponade in 0.5%, non-Q wave myocardial infarction in 1%, no pt died.

Conclusions: The use of a new guidewire family with a tapered tip and the concept of stepwise increase of wire tip stiffness is safe and very effective in recanalizations of CTO. Wire success was significantly dependent on the visibility of MC.

**Figure 1**

- **Wire Success (%)**
  - MC 0: 67%
  - MC 1: 81%
  - MC 2: 100%
  - MC 3: 90%
  - Other wires: 200XT: 65%
  - Other wires: 400XT: 57%

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