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

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Background: Vascular micro channels (MC) in chronic total coronary occlusions (CTO) may guide recanalization wires and improve success rates. The new ACLS Cross II-OX 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 24-80 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 91% for the 100XT-wire, 76% for all Cross-I0X0X wires and 82% including other additional wire 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 76%.

In hospital events were pericardial 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
- MC 1
- MC 2
- MC 3

0% 20% 40% 60% 80% 100%

Other wires
100XT
200XT
400XL

*p < 0.01 and *p < 0.001 vs. MC 0

11:00 a.m.

Carotid Artery Stenting in Patients at High Clinical Risk

In CEA Complications: Immediate and Long-Term Outcome

Moshiri Shahram, Mastro, Fabio Sguera, Goran Stankovic, Alainde Chieffo, Jeffrey M. Inzen, Kenneth Rosenfeld, St. Elizabeth's Medical Center of Boston, Boston, Massachusetts.

Background: Limited information exists regarding the accuracy of doppler ultrasound in predicting restenosis after carotid artery stenting (CAS). Methods: 41 patients underwent both doppler ultrasound and quantitative carotid angiography (QCA) at a median of 6 months after CAS in a single operator. Ultrasound was performed by one experienced operator blinded to the results of QCA. Internal carotid arteries (ICA) with a peak in stent systolic doppler velocity of >130 cm/sec or a peak diastolic velocity of >70 cm/sec were identified as having >50% restenosis. Off line QCA was performed by a single investigator blinded to results of the ultrasound. The maximum % in stent restenosis of the ICA was calculated using the distal non tapered portion of the ICA as a reference.

Results: 8 of the 41 ICA stents had in stent restenosis of >50% by QCA. Only 1 ICA restenosis was symptomatic but all 6 ICA stents were performed in the presence of repeated percutaneous carotid intervention. Doppler ultrasound had a sensitivity of 33%, specificity of 63%, positive predictive value of 13%, and a negative predictive value of 85% in detecting an in stent ICA restenosis of >50% compared to QCA. The peak in stent ICA doppler velocity correlated mild-moderately with the maximum % in stent restenosis by QCA. (r=0.39, p=0.01).

Conclusion: Peak Doppler systolic and diastolic velocities resulted in several false positives and negatives in screening patients for restenosis after carotid artery stenting.

11:30 a.m.

Carotid Artery Stent Implantation With Cerebral Protection: A Multicenter Experience of 320 Procedures

Bernhard Reimers, Fausto Cintocla, Nicola Corvaja, Raffaello Menotti, Carlo Cerrnetti, Carlo Di Mario, Pietro Pascotto, Alberto Cremonesi. Antonio Colombo, Cardiology Department, Milano, Italy, Columbus Clinic, Milano, Italy.

Background: Distal embolization of debris during percutaneous carotid artery stenting may result in neurological deficit. Newly available devices for cerebral protection potentially reduce the risk or embolization.

Methods and Results: 320 consecutive procedures (306 patients) of elective carotid stent placement with cerebral protection performed in 3 different centers were included in a prospective registry.

Cerebral protection was performed using filter devices (80.6% of procedures), occlusive distal balloons (17.2%), and endoluminal clamping of the common and external carotid arteries (2.2%). All lesions presented a >70% diameter stenosis (mean 82±8%). Mean age of the patients was 67±11 years, 83% were males, and 58±7% of patients had a previous stroke or transient ischemic attack. In 313 procedures (98%) it was possible to position a protection device. In 9 of 55 procedures using distal balloon protection this was not tolerated by the patient (2.8%). In 317 procedures (99.1%) a stent was successfully deployed. Neurological complications during the procedure, in hospital and during 30 days of follow-up occurred in 6 patients (1.9%). These were 1 major stroke (0.3%), 3 minor strokes (0.9%), and 2 transient ischemic attacks (0.6%). Protection device related complications, all without neurological symptoms, occurred in 5 procedures (1.6%). These 3 distal dissections occurred with additional stents, 1 dissection at the site of the internal carotid artery, and 1 filter embolization requiring surgical removal. Major adverse cardiac events during the 30 days of follow-up occurred in 2 patients (0.6%).

Conclusions: Routine use of cerebral protection during carotid artery stenting appears feasible and safe. In the present registry the incidence of neurological complications was low.

11:45 a.m.

Carotid Artery Stenting With Neuroprotection: A Single Center Experience


Background: To prevent/reduce the incidence of cerebral embolic events during carotid artery stenting, various protective devices are being evaluated. The feasibility, safety and efficacy of these systems are currently under investigation.

Methods: Between 7-2000 - 7/2001, we performed carotid artery stenting using a variety of distal protection devices [Percusurge Guardwire™ (n=133), MedNova™ (n=61), Accu-Stop™ (n=3), Angioguard™ (n=4)] in 195 symptomatic and asymptomatic patients (201 arteries). The decision to use a filter or a balloon occlusion device was based on the clinical presentation of restenosis. To prevent and reduce the incidence of cerebral embolic events during carotid artery stenting, various protective devices are being evaluated. The feasibility, safety and efficacy of these systems are currently under investigation.

Results: Of the 55 procedures, 2 patients had retinal emboli leading to permanent blindness. In the Guardwire™ group, 2 patients had retinal emboli leading to permanent blindness. In the Guardwire™ group, 2 patients had retinal emboli leading to permanent blindness. In the Guardwire™ group, 2 patients had retinal emboli leading to permanent blindness. In the Guardwire™ group, 2 patients had retinal emboli leading to permanent blindness.