Conclusions: CAS can be performed in elderly patients without higher risk than in younger patients. But good indications, a meticulous technique, protection devices are mandatory and some technical points must be pointed out to avoid neurological complications and failures.

TCT-556
Optical Coherence Tomography in Carotid Artery Stenting: Feasibility and Safety

Sandeepr Kishlan1, Mamoo Nakamura2, Hasan Jilani1, Sahail Dohad1
1 Cedars-Sinai Heart Institute, Los Angeles, CA, 2 Cedars-Sinai Medical Center, Los Angeles, CA

Background: Optical coherence tomography (OCT) is an optical signal acquisition and processing method that captures micrometer-resolution, three-dimensional images from within optical scattering media that has a higher homospatial resolution than intravascular ultrasound. Currently, characterization of carotid atherosclerotic disease is based on the anatomic degree of stenosis; however, imaging technologies such as OCT can be a useful adjunct to provide additional information in characterizing carotid atherosclerotic disease and guiding therapeutic interventions without increasing perioperative morbidity or mortality.

Methods: We evaluated 60 consecutive patients (35 men; mean age 75 ± 4 years) undergoing protected carotid artery stenting (CAS) since OCT was available in our lab (November 2011). 27 of these 60 patients underwent CAS utilizing OCT evaluation and the remainder underwent CAS without OCT guidance. Our purpose is twofold: (1) to present the first published US experience (and largest experience globally) utilizing OCT to guide CAS from a safety and feasibility standpoint and to demonstrate that OCT does not increase procedure time or perioperative morbidity or mortality; and to (2) highlight 3 substantive cases to explain challenges in image acquisition, image interpretation, and using images to guide interventional strategy.

Results: No procedural or in-hospital neurological complications occurred in either group (stroke/death 0%). The total amounts of contrast and fluoroscopic time/dose did not vary significantly between those patients undergoing OCT-guided CAS or CAS without OCT guidance. OCT images revealed innovative features such as rupture of the fibrous cap, plaque prolapse, large lipid pool, and stent malapposition in a high percentage of patients; these findings were then used to guide intraoperative decision-making.

Conclusions: Intravascular OCT during CAS appears to be feasible and safe. We have established a protocol to successfully, consistently and safely obtain images that may subsequently be used to guide interventional decision-making with the ultimate aim of improving short and long-term outcomes.

TCT-557
Carotid Artery Stenting with Double Cerebral Embolic Protection in Symptomatic Patients

Ferderindo Varbellia1, Francesco Tomassini2, Andrea Gagnor3, Alfonso Gambino4, Paolo Guay Prioni5, Massimo Hartwig6, Monica Reggiani7, Salvatore Amarù8, Emilio Landi9, Carlino10
1 Infermi Hospital, Rimini, Italy, 2Cardiovascular Institute, University of Bologna, Italy, 3 Ospedale di S. G. B., Belluno, Italy, 4 Policlinico di S. Mauro, Genova, Italy, 5 Medstar Georgetown University Hospital, Washington DC, USA, 6 Istituto di Neurologia, Città di Castello, Italy, 7 Centro Cardiovascolare, Milan, Italy, 8 Ospedale di S. G. B., Belluno, Italy, 9 Hospital of Pertusato, Rome, Italy, 10 Centro Cardiologico, Città di Castello, Italy

Background: Previous trials comparing carotid artery stenting (CAS) with carotid endarterectomy (CEA) demonstrated controversial results, mainly in symptomatic patients, because of higher stroke rate. However, the increase of the experience of the operators, the improvement of the stents and of the embolic protection devices (EPD) has shown to be a sensitive marker of clinical and subclinical cerebral damage, such as stroke and mild traumatic brain injury. In this study we try to reveal the link between S100B and postoperative cognitive impairment in patients undergoing carotid revascularization by using the audio-verbal learning test (AVLT). The AVLT has shown to be a sensitive measure for cognitive changes following carotid revascularization.

Methods: Blood samples were taken in 31 patients undergoing carotid revascularization (15 carotid endarterectomy, 6 carotid stenting (CAS) with filter protection device, and 10 CAS with flow reversal) pre-operatively, peri-operatively, and 2, 6, and 24 hours postoperatively. The serum S100B was measured using S100 Cobas®. All patients were cognitively tested one month postoperatively.

Results: For S100B, repeated measures show significant within subjects differences (ANOVA F=19.64, p<0.001 (see Figure 1)). Because the two hours postoperative S100B resulted in the highest peak value, this measure was used to correlate to AVLT measures. There was no relation between the sum of the five encoding trials (r=0.172, p=0.66), but the long-term recall showed a non-significant trend (r=-0.358, p=0.078). Higher S100B values are associated with lower long-term audio-verbal memory scores.

Conclusions: In this study S100B follows the typical increase early postoperatively, as shown in other studies. The magnitude of this increase seems marginally correlated to memory performance one month postoperatively. S100B may therefore have a predictive value for longer lasting cognitive impairments.

TCT-560
Transradial and Transbrachial Arterial Approach for Simultaneous Carotid Angiographic Examination and Stenting Using Catheter Looping and Retrograde Engagement Technique

Ali Yousef Moustafa1, Hsin Chien-Yang2, Ashfaq Hussain3, Chiang-Jen Wu2
1 Suez Canal University, Ismailia, Saudi Arabia, 2 Chang Gung Memorial Hospital, Kaohsiung, Taiwan, Republic of China, 3 National Heart Institute, Cairo, Egypt

Background: The purpose of this study was to introduce a novel and safe technique with high procedural success for carotid artery stenting (CAS).

Methods: From April 2008 to May 2009, 161 patients underwent CAS using either a high transradial arterial approach (TRA, defined as 10 cm above stenotic process) or a transbrachial arterial approach (TBA) with a 7F arterial sheath. Selective carotid angiography was performed using a 6F Kimny guiding catheter and Teflon wire (260 cm in length) by Catheter Looping And Retrograde Engagement Technique (CLARET), following the guiding catheter seated on the right coronary cusp and its tip engaged into the common carotid artery (CCA). Teflon wire was introduced into the CCA again after the diagnostic procedure, followed by replacement of the 6F Kimny guiding catheter by a 7F Kimny catheter for CAS using one of the following techniques: (1) direct-engagement method, i.e., from right innominate artery into the right CCA; (2) looping method plus double wire technique (utilized two Teflon wires to provide an adequate support) for both the right and left CCA; and (3) looping method plus a PecuSurge balloon anchoring at the external carotid artery.

Results: This distinctive technique offered 100% diagnostic success and 99.4% CAS success. Two patients (1.2%) experienced major ischemic stroke after CAS and two (1.2%) died during hospitalization.

Conclusions: The results of the present study showed that high TRA/TBA using CLARET for CAS in patients with severe carotid artery stenosis is safe and technically feasible with an extremely high success rate.