eventually additional stent implantation in SB ostium) while leading to ischemic compromise. Nevertheless, there is little data using FD-OCT imaging to better understand the relationship between underlying plaque and acute stent-vessel interactions in this setting.We aim to evaluate, by means frequency-domain optical coherence tomography (FD-OCT), the impact of main branch (MB) calcified plaques on side branch (SB) occlusion after MB stent implantation in coronary bifurcations.
Methods: We evaluated 78 patients with native de novo coronary bifurcation lesions with SB deserving wire protection (side-branch length greater than 50mm) who underwent MB FD-OCT before stent implantation. FD-OCT assessments were performed pre-PCI to evaluate the plaque type calcium and non-calcium (fibrous and lipid) of main branch. SB occlusion was defined as % diameter stenosis greater than 75% of SB ostium by angiogram after MB stent implantation.
Results: Occlusion of SB occurred in 43.6%- while 18 patients required balloon angioplasty for SB occlusion. In multivariable analysis, true bifurcation (odds ratio [OR]: 3.70; 95% confidence interval [CI]: 1.13 to 12.58; $p = 0.030$) and calcified plaque determined by FD-OCT assessments (OR: 17.11; 95% CI: 4.97 to 58.96; $p < 0.001$) were independent predictors of SB occlusion.
Conclusions: Calcified plaque demonstrated by FD-OCT assessments as well as true bifurcations were identified as independent predictors of SB occlusion after MB stent implantation.

TCT-581

Optical coherence tomography during everolimus-eluting bioabsorbable vascular scaffold implantation in patients whith acute coronary syndrome.

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Background: Everolimus-eluting bioabsorbable vascular scaffold (BVS) is a new promising therapeutic technology for the treatment of coronary heart disease. However, clinical experience with this device is still limited in patients with acute coronary syndrome and thrombus containing lesions. The purpose of this study is to analyze the usefulness of the optical coherence tomography (OCT) in the monitorization of these procedures.
Methods: From January 2012 to May 2013, 66 patients with acute coronary syndrome were treated by BVS implantation. After identification of the culprit lesion, a baseline intravascular ultrasound study (IVUS) was performed. Taking into consideration the IVUS information, direct stent deployment was carried out in 44 patients (67%). After the BVS implantation, an OCT catheter was advanced distal to the area of interest over a conventional coronary guide-wire. Several pullbacks were performed to obtain an optimal visualization of the treated segment.
Results: The mean age was 55±9 years, 25 (38%) patients had ST elevation and the remaining 41 had ACS without ST elevation. After treatment, the percentage of stenosis changed from 81±15% to 6±6%. According with the angiographic criteria, the procedure was successful in all 66 patients. However, immediately after the BVS deployment the OCT showed the following negative findings: 1) Proximal struts non apposition 13 (20%). 2) Distal struts non apposition 3 (4%). 3) Prolapse of the plaque or thrombus into the BVS 24 (36%). 4) Proximal edge dissection (non-detected by angiography) 8 (12%). 5) Distal edge dissection (non-detected by angiography) 10 (15%). 6) Severe BVS under-expansion 4 (6%). 7) Main vessel BVS deformation after side branch dilation 4 (out of 10 treated bifurcation lesions). According with these findings the operator modified the procedural strategy in 36 patients (54%): 1) Post-dilation of the BVS with a new balloon in 28 (42%). 2) Kissing balloon or sequential dilation (side-main-side) in 4 bifurcation lesions. There were no in-hospital major complications.
Conclusions: Angiography has limitations in the assessment of the immediate results after BVS treatment of coronary lesions. However, OCT is an useful adjunctive tool during the monitorization of this procedure in patients with acute coronary syndromes.

TCT-582

Association Of Coronary And Carotid Artery Plaque Composition By Intravascular Ultrasound Virtual Histology With Stent Restenosis And Plaque Progression

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Background: Atherosclerosis is a systemic inflammatory disease involving multiple arterial beds. Despite differences in the carotid and coronary vasculature, both vascular distributions are believed to share common pathway in disease progression. It is not known whether the atherosclerotic plaque composition is associated with stent restenosis and atherosclerosis progression.
Methods: In Latvian Center of Cardiology patients for previous indications underwent coronary and carotid angiography. Patients with concomitant coronary and carotid artery disease defined as ≥50 % stenosis were included in single-center, prospective study. All patients were scheduled for carotid and/or coronary artery stenting and prior to intervention IVUS-VH (Eagle Eye; Volcano Therapeutics Inc; CA, USA) imaging of coronary and carotid plaque were done. Angiography and IVUS-VH follow-up was scheduled after 16 month.
Results: 100 consecutive patients (60% men), mean age 69.6±8.4 years, were enrolled. 78.0% of patients (n=78) underwent carotid stenting and 36.0% (n=36) had PCI. For 75 patients angiographic and IVUS-VH follow-up was done (mean 489 days, 95% CI 507.0 - 631.8). Carotid restenosis rate was 1.8% (n=1). 3 of 17 patients (17.6%) had plaque progression and consequent carotid stenting. Coronary restenosis rate was 25.8% (8 of 31 patients). We found no difference in unstented carotid plaque tissue composition by IVUS-VH at baseline between progressive (n=3) and nonprogressive (n=14) carotid plaques (fibrotic tissue 56.7±8.4% vs 57.3±7.4%, p=0.898, fibrolipids 15.0±7.5% vs 18.7±9.3%, p=0.531, calcium 5.7±3.5% vs 5.8±4.0%, p=0.959, necrotic core 22.3±12.9% vs 18.4±9.7%, p=0.548). Similarly, no association with IVUS-VH characteristics of culprit lesion at baseline was found between coronary restenosis (n=8) and no-restenosis (n=23) group.
Conclusions: Atherosclerotic plaque tissue characteristics by IVUS-VH were not associated with carotid plaque progression and frequency of restenosis in coronary arteries in these series. Restenosis rate in carotid arteries is low in comparison with coronary arteries regardless of the stenosis morphological differences.

TCT-583

The Extent of Lipid-Rich Plaque Assessed by Near-Infrared Spectroscopy May Predict DES Failure: A COLOR Registry Analysis

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Background: The COLOR Registry is a prospective, multicenter observational study of real-world pts undergoing percutaneous coronary intervention who also had intracoronary imaging using near infrared spectroscopy (NIRS).
Methods: We investigated the relationship between the extent of lipid rich plaque (LRP) assessed by pre-intervention NIRS at the time of drug-eluting stent (DES) implantation and subsequent DES failure (restenosis or thrombosis). Raw spectroscopic information was transformed into a probability of LRP; pixels with a probability of LRP >0.6 were divided by all viable pixels to generate the lipid-core burden index (LCBI). Case-control matching was performed with respect to age, gender, diabetes, baseline symptoms, stent type, stent length, and time to event.
Results: Eleven pts who developed DES failure [10 restenosis (1 proximal edge, 9 in-stent) and 1 subacute stent thrombosis] at a median of 363 days (range 8-598 days) post-implantation and NIRS study were compared to 27 matched cases without stent failure. Baseline characteristics were well-matched between the groups (Table). Although stent length and final diameter stenosis were similar in both groups, stented segment LCBI was significantly greater in the stent failure group than in the control group with no different in the adjacent reference segments. Importantly, DES failure was not seen in the setting of a maxLCBI4mm <100.

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