

balloon is an angioplasty catheter with 3 longitudinal elements that produce 3 endovascular surgical incisions during balloon dilation. The aim of this study was to evaluate plaque modification with NSE compared to those with conventional balloon angioplasty (POBA) using IVUS.

Methods: A total of 62 de novo coronary lesions were enrolled in this study. Patients were divided into 2 groups according to pre-dilatation strategy: NSE (n=32) and POBA (n=30). Volumetric IVUS analyses were performed for before and post-stenting. Volume index (VI: volume/length) was calculated for vessel, lumen, and plaque.

Results: Vessel VI before stenting was similar between the 2 groups. For the post-stenting, vessel and peri-stent plaque VI were significantly smaller in the NSE group compared with the POBA group, while stent VI was similar between the 2 groups. In addition, serum level of creatine kinase and troponin level after stenting was not different between the groups.

Conclusion: Our results demonstrate that plaque modification with NSE before stenting decreased vessel enlargement and increased peri-stent plaque compression without distal embolization compared with POBA, although stent expansion was similar between the 2 groups.

TCTAP A-085

What Stent Diameter Should We Select in Order to Prevent from Stent Edge Dissection in OCT-guide?

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Background: To get better clinical outcome, biggest stent diameter without causing edge dissection should be selected. Optical coherence tomography (OCT) can show the lumen diameter of stent landing zone precisely and also show stent edge dissection clearly. We investigated the stent edge lesion in relation to stent diameter using OCT.

Methods: From July 2012 to August 2013, we investigated 384 stent edge lesions without calcification treated with single 2nd generation drug-eluting stent (DES) under OCT guidance. Before and after deployment of DES with stent delivery balloon by 2 or 3 times inflations, diameter and area ratios of stent edge to reference lumen were analyzed by OCT. We compared these between edge dissection group and no-dissection group.

Results: The overall incidence of edge dissection was 23 lesions (6.0%). Compared with no-dissection group, ratio of stent edge to reference lumen diameter (1.24 vs. 1.12, $p < 0.001$) and area (1.56 vs 1.26, $p < 0.001$) were significantly larger in edge dissection group. Most of reference tissue character in edge dissection group was eccentricity (N=16(69.6%)) and lipid rich plaque (N=15(65.2%)).

Conclusion: We should select optimal stent diameter by up to quarter size-up to reference diameter in order to prevent from stent edge dissection.

TCTAP A-086

Quantitative Comparison of Vessel Dimensions Measured by Optical Coherence Tomography and Intravascular Ultrasound in Coronary Atherosclerotic Plaques

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Background: Optical coherence tomography (OCT) is a novel intracoronary imaging technique with an extremely high resolution, which is inferior to intravascular ultrasound (IVUS) in visualizing adventitia with lipid rich plaque because its drawbacks include a limited tissue penetration. This study compared the findings of OCT and IVUS used for the in vivo assessment of coronary lesions with lipid rich plaque.

Methods: We enrolled 80 segments with lipid rich plaque of 80 stable angina patients that were performed by both OCT and IVUS. The segments were classified into four groups according to the degree of lipid arc measured by OCT (group1: lipid arc $< 90^\circ$, group2: $90^\circ \leq$ lipid arc $< 180^\circ$, group3: $180^\circ \leq$ lipid arc $< 270^\circ$ and group4: $270^\circ \leq$ lipid arc $< 360^\circ$). The parameters (luminal area (LA), external elastic membrane (EEM), Plaque plus media (P&M) calculated as LA subtracted from EEM), which have been evaluated independently by OCT and IVUS for all segments, were analyzed by using Spearman correlations and Bland-Altman plots.

Results: 80 segments were classified as: group1 (n=12), group2 (n=23), group3 (n=28) and group4 (n=17). Between OCT and IVUS, there were high correlations in all groups of LA (group 1, 2, 3 and 4: Spearman correlation coefficient, $r=0.976, 0.983, 0.963$ and 0.989 , respectively; all $p < 0.001$) and EEM ($r=0.978, 0.917, 0.831$ and 0.663 ; $p < 0.001, < 0.001, < 0.001$ and $= 0.003$, respectively). There were significant correlations between OCT and IVUS measurements in group 1, 2 and 3 of P&M, while there was not significant correlation in group 4 of P&M (group1, 2, 3 and 4: $r=0.711, 0.767, 0.626$ and 0.308 ; $p=0.008, < 0.001, < 0.001$ and 0.233 , respectively). The Bland-Altman plots indicated no evidence of systemic bias in all groups of LA (group1, 2, 3 and 4: 95% confidence interval(CI) = -1.3 to 0.7, -1.2 to 0.4, -1.4 to 0.9, -1.1 to 0.5 mm², respectively), EEM (95% CI = -1.5 to 1.1, -3.2 to 2.6, -5.2 to 3.2, -9.2

to 4.9 mm², respectively) and P&M (95% CI = -1.1 to 1.3, -2.8 to 3.1, -5.1 to 3.5, -9.1 to 5.4 mm², respectively).

Conclusion: OCT might be feasible for quantitative measurements of vessel size in the lesion with the lipid arc of ≤ 3 quarters.

Left Atrial Appendage Closure (TCTAP A-087)

TCTAP A-087

Percutaneous Left Atrial Appendage Occlusion Can Be Performed Under Conscious Sedation Without General Anaesthesia

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Background: Percutaneous left atrial appendage occlusion (LAAO) procedure is typically performed with transesophageal echocardiography (TEE) guidance under general anaesthesia (GA). Whether the complexity of this procedure can be reduced by performing under conscious sedation (CS) instead of GA has not been studied.

Methods: The feasibility and safety of performing LAAO procedures in 8 patients (4 men, mean age 67 ± 10) under CS with intravenous Midazolam \pm Fentanyl was studied. TEE was used to guide transseptal puncture and implantation of LAAO devices. Patients' haemodynamic conditions and oximetry were monitored closely during the procedures

Results: All patients underwent LAAO procedures successfully with CS. The procedural duration and fluoroscopic time were 98.6 ± 27.1 and 14.4 ± 5.2 minutes respectively. The doses of Midazolam and Fentanyl required were 5.7 ± 2.0 mg and 56.3 ± 32 μ g respectively. There was no complications arising from the use of CS. Watchman and Amplatza Cardiac Plug (ACP) devices were implanted in 5 and 3 patients respectively with a mean size of 27.6 ± 5.2 mm. One patient had minor migration of ACP device on day one routine TEE surveillance. The device was successfully retrieved percutaneously and the patient was free from any long-term sequelae. With a median follow-up of 15.5 months, warfarin could be successfully stopped in all patients and no thromboembolic complications have been observed.

Conclusion: LAAO procedure can be performed under CS safely. This approach will significantly reduce the complexity of this increasingly performed procedure.

Non-Invasive Cardiac Imaging: CTA, MRI, 3D-Echo, and Other (TCTAP A-088 to TCTAP A-092)

TCTAP A-088

Validation of Stress Myocardial Perfusion Computed Tomography in Patients with Suspected Coronary Artery Disease Using Fractional Flow Reserve: Visual Assessment and Exploration of Quantitative Parameters

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Background: To assess the diagnostic accuracy of stress-induced computed tomography myocardial perfusion imaging (CTP) in patients with coronary artery disease (CAD). There was lack of data on the validity of CTP for diagnosing CAD.

Methods: From 197 patients with suspected CAD receiving CTP using second generation dual-source CT, 75 who underwent coronary angiography and fractional flow reserve (FFR) for 210 epicardial arteries were selected for analysis. The diagnostic accuracy of visual and quantitative CTP analyses including transmural perfusion ratio (TPR), myocardial density, and myocardial perfusion reserve index (CT