TCT-470
The Clinical Implication of Neointimal Characteristics Observed in Optical Coherence Tomography after Stent Implantation
Jung-Hoon Choi1, Dong-Ho Shin2, Bongseok Kim3, Young-Guk Ko4, Myeong-Ki Hong5
1Yonsei University College of Medicine, Seoul, Korea, Republic of; 2Yonsei University, Seoul, Korea, Republic of; 3Yonsei University Severance Cardiovascular Hospital, Seoul, Korea, Republic of; 4Severance Cardiovascular Hospital, Seoul, Korea, Republic of; 5Severance Cardiovascular Hospital and Research Institute, Seoul, Korea, Republic of

Background: Recent studies have reported differential morphologic characteristics of neointimal tissue after stenting by optical coherence tomography (OCT). The aim of this study was to investigate the clinical implication of the characteristics of neointimal hyperplasia after stent implantation.

Methods: A total of 492 lesions in 447 patients treated with stents from the Yonsei OCT registry were divided into two groups based on the OCT characteristics: heterogeneous group including thin-cap fibroatheroma (TCFA) (n=146 lesions in 135 pts) and non-heterogeneous group (homogenous and layered, n=346 lesions in 312 pts). The baseline clinical characteristics, angiographic features and OCT findings were compared between the two groups. The major adverse cardiac events (MACEs), a composite of cardiac death, non-fatal myocardial infarction (MI), target lesion revascularization (TLR) were assessed according to neointimal patterns.

Results: The mean age of heterogeneous group and prevalence of acute coronary syndrome (ACS) was higher (64.1±8.9 vs. 61.4±9.7, p=0.004 and 60.3% vs. 51.6%, p=0.003). Statins were less often used in heterogeneous group (86.9% vs. 93.8%, p=0.016). The heterogeneous group showed a significantly higher frequency of bare metal stents (BMSs) (5.6% vs. 0.9%, p=0.001), and first generation drug-eluting stents (DESs) (49.3% vs. 37.3%, p=0.016). Compared with non-heterogeneous, heterogeneous group had a longer time interval after stenting (33.4±22.2 vs. 16.2±22.3 months, p=0.001). In multivariate analysis, the most significant determinant for the heterogeneous pattern was the initial ACS diagnosis (odds ratio [OR]=2.13, 95% confidence interval [CI]=1.28-3.54, p=0.004). The MACEs occurred more frequently in the heterogeneous group (14.9% vs 4.4%, p=0.001). A multivariate Cox regression analysis also showed that heterogeneous neointimal types could be an independent risk factor (HR=3.63, 95% CI=2.33, 95% confidence interval [CI]=1.34 – 7.82, p=0.009).

Conclusions: The neointimal characteristics could be helpful to predict long-term clinical outcomes. Especially, heterogeneous neointimal pattern might be related with a poor clinical prognosis.

TCT-471
Relation of Stent Thrombosis to Interruption of Dual Antiplatelet Therapy After Resolute Zotarolimus-eluting Stent Implantation
Deepak L. Bhatt1, Sigurd Silber2, Stephen Windecker3, Sandeep Bra1, Mingliu Liu4, Xiaohua Chen5, Ajay J. Kirtane6
1VA Boston Healthcare System, Brigham and Women’s Hospital, and Harvard Medical School, Boston, USA; 2Heart Center at the Isar, Munich, Munich, Germany; 3Berner University Hospital, Bern, Switzerland; 4Medtronic, Inc., Santa Rosa, CA; 5Harvard Clinical Research Institute, Boston, MA; 6NewYork-Presbyterian Hospital /Columbia University Medical Center, New York, NY

Background: Dual antiplatelet therapy (DAPT) is utilized for varying durations following drug-eluting stent (DES) implantation in patients with stable coronary artery disease, largely based on concerns of stent thrombosis (ST). A prior study of 3571 patients undergoing Resolute™ zotarolimus-eluting stent (R-ZES) implantation found that the greatest risk of ST occurred in the first month after the procedure if DAPT was interrupted. We sought to extend this analysis.

Methods: A patient-level analysis of all available Resolute™ zotarolimus-eluting stent (R-ZES) studies (n=8) was conducted. Rates of ARC definite/probable ST at one year were examined as a function of whether DAPT was interrupted prior to ST for more than one day within the first month or between 1 and 12 months after stent placement.

Results: There were a total of 7131 patients eligible for the DAPT analysis: 1315 (18%) had an interruption of DAPT during the first 12 months post R-ZES implantation. Of those 1315 patients, 221 (17%) had the DAPT interruption in the first month and 1094 (83%) between 1-12 months post DES. The baseline characteristics of the patients with DAPT interruption were notable for median age of 66 years, with 32% having diabetes and 45% with an acute coronary syndrome (15% biomarker positive, 31% with unstable angina); the mean number of stents placed was 1.6, and the mean total stent length was 31 mm, and the mean stent diameter per stent was 2.9 mm. The overall rate of stent thrombosis within 12 months was 0.7% (507/1315). The 12-month rate of ST with DAPT interruption in the first month was 3.2% (72/221) and 0.1% (1/1094) with DAPT interruption in the >1-12 month group. The rate of ST over 12 months in patients with no DAPT interruption was 0.7% (42/5816).

Conclusions: In this larger pooled analysis of patients undergoing R-ZES placement, the 12-month rate of ST with DAPT interruption in the first month was significantly higher than prior reports. Polymerase chain reaction (PCR) was performed for P2A; Glu298Asp, -786T/C6 and -146C/T, with the majority of ST events occurring during the first month after stent implantation. There was no apparent increased risk for ST in patients who needed to interrupt DAPT after the first month post R-ZES placement.

TCT-472
Difference In Outcomes After Repeat Percutaneous Coronary Intervention For Sirolimus-eluting Stent Restenosis Lesions With or Without Stent Fracture.
Yasunari Sakamoto1, Toshiya Muramata2, Reiko Tsukahara3, Yoshiaki Ito4, Tatsuyoshi Sakai1, Hiroshi Ishimori1, Keisuke Hirato1, Masatsugu Nakano1, Masahiro Yamawaki5, Motohara Araki3, Tamon Kato3, Norhiro Kobayashi2, Hideyuki Takamura3, Shinshu Moto3, Masakazu Tsutsui6, Takurou Tokuda7, Hiroya Takayagi7, Takahiro Tokuda8
1Saitama Kosei Hospital City Eastern Hospital, Yokohama, Japan

Background: Presence of stent fracture (SF) after sirolimus-eluting stent (SES) implantation has been reported to be associated with an increased risk of in-stent restenosis and target lesion revascularization (TLR). Incidence of SF and the relevance to cardiovascular events are previously reported. But little is known about the outcomes after repeat percutaneous coronary intervention (PCI) for SES restenosis lesion with SF. So this study compared the outcomes after repeat PCI for SES restenosis lesion with or without SF.

Methods: From April 2007 to September 2011, total 2020 lesions implanted SES during PCI at our hospital. Total 148 lesions, 7.3% had restenosis (defined as % diameter stenosis >50%) in follow up angiogram. Of the restenosis lesion, 107 lesions went to TLR those consisted of 75 lesions with repeat DES implantation and 32 lesions with balloon angioplasty alone. SF was defined as complete or partial separation of the stent as assessed by plain fluoroscopy and detected in 61 lesions of SES restenosis lesions. Thirty-three SES restenosis lesions with SF (SF group) and 42 SES restenosis lesions without SF (non SF group) were retrospectively evaluated restenosis rate during follow up after repeated implantation of DES.

Results: Baseline characteristics were similar. One-year cumulative incidence of restenosis after repeat DES implantation for SF group and non SF group which calculated by Kaplan-Meier method were 68% and 36% (Log-rank test P=0.0332), respectively (figure).

Conclusions: Restenosis lesions with SF had significantly high incidence of restenosis after repeat DES implantation.

TCT-473
Genetic Polymorphisms of Platelet and Endothelial Nitric Oxide Synthase and their Relationship with Stent Restenosis and Coronary Events at Long Term Follow Up.
Diego D. Grinfeld1, Fernando Fuertes1, Liliana Grinfeld1, Jose Luis Parmisano1, Ricardo Pastene1, Pablo Pollono1, Ignacio Rifourcat3, Florencia Rolandi3, Viviana Zaldua2, Hospital Español De La Plata, La Plata, Argentina, 1Hospital Español De La Plata, La Plata, Argentina, 3Hospital Español De La Plata, La Plata, Argentina

Background: Platelets and nitric oxide system play an important role in coronary disease. Platelet and eNOS polymorphism could be associated with stent restenosis and coronary events.

Methods: We included 92 patients (pts) with previous PCI referred to cath lab. We consider cases pts with confirmed angiographic restenosis (>50%land control pts without restenosis. Polymerase chain reaction (PCR) was performed for P2A; Glu298Asp, -786T>C, 922A/G, intronic 420/393 polymorphisms. A 5 years FU was done in 96% of pts. A multiple logistic regression analysis with clinical, angiographic and genetic features was performed.

Results: 92 pts were included: 41 with restenosis and 51 without restenosis. Age,sex and coronary risk factors were similar in both groups. We use near 60% of DES in both groups. The genotype distribution is shown in the table. Pts with P2A polymorphism had a significantly higher restenosis rate than those without this allele(21.9% vs. 1.9%, OR:14.1, 95%CI:1.7-116.3, p=0.02). Similarly was observed in patients with 922A/G (41.5% vs. 19.6%, OR:2.9, 95%CI:1.2-7.4, p=0.002). Restenosis and events where similar in pts with 922A/G allele, Glu298Asp, intronic 420/393 and -786T>C polymorphism. In the multivariate analysis the P2A/G and eNOS-786 were the only independent predictor of restenosis. At 5 years FU, the cardiac events rate was: death 12%, new restenosis 8.0%, hospitalization 31.8%, non target lesion revascularization (TLR) 12.5%, with no differences within groups. Only the PL2A2 was associated with non TLR at 5 years FU (36.4% vs. 7.8%, p=0.005).

Conclusions: Restenosis lesions with SF had significantly high incidence of restenosis after repeat DES implantation.