Conclusions:

Methods: Consecutive patients who underwent IVUS analysis after drug-eluting stent implantation for de novo lesions were evaluated. Stent length was studied using automatic pullback of an IVUS catheter (Boston Scientific Corp/SCIMED, MN) and was further analyzed for change in length (IVUS - label(mm), the absolute change in length [IVUS – label(mm)], and the absolute value of the relative change in length [IVUS-label/mm]).

Results: A total of 183 stents were included: 38.3% sirolimus-eluting stents (SES); 27.9% zotarolimus-eluting stents (ZES); 20.2% Co-Ch everolimus-eluting stents (Cc-EES); 7.1% PI-Ch everolimus-eluting stents (Pc-EES) - the Element platform and 6.6% paclitaxel-eluting stents (PES). The change in stent length (mm) and the relative change in length (%) differed between groups: SES 0.3 ± 1.2; ZES 1.0 ± 1.3; Cc-EES 0.6 ± 1.0; Pc-EES 0.4 ± 1.1; PES -0.1 ± 1.4 (p=0.008) and SES 1.7 ± 0.6; ZES 5.7 ± 6.7; Cc-EES 3.5 ± 5.6; Pc-EES 2.3 ± 6.0; PES -2.2 ± 8.1 (p<0.001), respectively. Relative change in stent length was higher in the ZES group in comparison with SES and PES groups. (p<0.001 for both). There were no statistical differences between the Pc-EES (Element) and any other stent types. The rate of absolute relative change >5% in stent length was lower in the SES group compared to the other groups: SES 34%; ZES 63%; Cc-EES 54%; Pc-EES 46%; and PES 67% (p=0.02). Significant (>15%) absolute relative change in length was rare (3.8%) and did not differ between groups (p=0.54). Long stents (≥20 mm, n=62) had a higher absolute change in length when compared to other stent groups (18 mm, n=50 and ≤16 mm, n=71): 1.3 ± 1.0 vs. 1.0 ± 0.6 vs. 1.0 ± 0.6, respectively (p=0.02).

Conclusions: IVUS analysis revealed that significant change in stent length after implantation was rare in all stent types. Stent axial integrity was influenced by stent length; longer stents displayed a higher absolute change in length than did shorter stents.

TCT-543
Partial strut fracture in everolimus-eluting stents: An intravascular ultrasound study
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Background: We report for the first time a specific pattern of stent strut fracture in everolimus-eluting stents (EES).

Methods: We retrospectively analyzed 439 consecutive stented lesions in 364 pts who underwent intravascular ultrasound (IVUS) during EES follow-up from January 2011 to February 2012.

Results: IVUS fractures were observed in 13 Xience V stents in 9 RCA, 3 SVGs, and 1 LAD; 7 stent fractures (53.8%) were located near the ostium. Two layers of stent struts were present within the length of a single stent in 11 of 13 stent fractures (84.6%), indicating that fracture was followed by partial longitudinal stent overlap (Figure). By IVUS, a strut length was <4mm² that was <10mm in length was observed at 12 fractured sites (92%); and cardiac events occurred in 12 pts (92%: 2 NSTEMI without angiographic thrombus and 12 target lesion revascularizations).

Conclusions: Partial strut fracture with Xience V EES may result in overlap of the stent edges proximal and distal to the site of fracture.

TCT-544
Case Series of 100 cases of longitudinal stent Deformation
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Background: Case series have reported LSD associated with a range mechanisms, platforms and clinical events. To further elucidate mechanisms we amalgamated published reports with additional unpublished cases.

Methods: We reviewed reports and angiographic images from 38 cases from 6 centres. An additional, 5 published cases and procedural details from 57 cases published from the MAUDE database were included. 20 published cases were excluded due to insufficient details.

Results: In 100 cases, LSD most commonly involved LAD and RCA interventions (38 and 34 cases) and LMS intervention (13 cases) and less commonly circumflex and graft interventions (5 and 8 cases). LSD was associated with the Element type platform in 78 cases and associated with Driver/Endeavor, Biomatrix/Nobori, Resolute, Xience, and Cypher platforms in 7,4,3,3,3 cases. The mechanism of LSD was identified in 78 cases. LSD of the proximal stent was induced by the guide catheter in 25 cases (33%), re-entry by a balloon catheter in 30cases, and other equipment in 3 cases. LSD of the distal stent was induced by equipment withdrawal in 20 cases (25 %) involving IVUS catheters, filter devices, previously inflated balloons, trapped wires. Several cases of distal LSD involved secondary guide induced proximal LSD when the guide was sucked in. Treatment involved further stenting or reballoning in 66 and 22 cases; with 12 cases that were not re-expanded. Adverse procedural outcome including emergency CABG was reported in 2 cases, and stent thrombosis in 5 cases.

Conclusion: The commonest mechanism causing LSD were guide catheter contact and post dilation balloon re-entry, with a further 25 cases caused by equipment withdrawal. LSD occurred uncommonly with circumflex and graft interventions. It was successfully treated by reballoning and/or restenting in most cases, but with a 7% incidence of MACE. The commonest stent platform was the element type platform.

TCT-545
The impact of sirolimus-eluting stent and evolulimus-eluting stent on the in-sent restenosis and stent fracture; evaluating peri-stent contrast staining lesions after drug-eluting stent implantation
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Background: Peri-stent contrast staining (PSS) was defined as contrast staining outside the stent contour extending to ≥20% of the stent diameter. PSS could be related to in-stent restenosis and very late stent thrombosis. Furthermore PSS is linked to in-stent restenosis and stent fracture. We evaluated the prevalence and clinical implications of PSS after everolimus-eluting stent(EES) comparing those of sirolimus-eluting stent (SES).

Methods: From November 2002 to September 2011, we treated 5239 lesions with SES and 2119 lesions with EES. We evaluated the PSS after SES and EES implantation at follow-up coronary angiography. Data are shown in the table. The incidence of in-stent restenosis and stent fracture among the lesions with diagnosis of PSS was compared between SES and EES.

Results: Data are shown in the table.

Conclusion: The clinical implication of PSS after EES implantation was quite different from those of SES implantation.