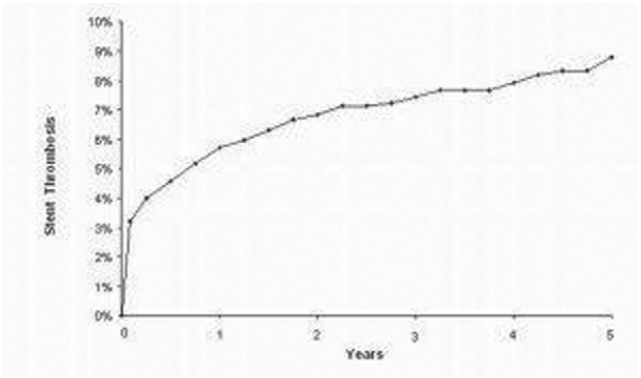

Conclusion: ST after primary PCI is frequent and continues to increase past 5 years. New strategies are needed to prevent ST in STEMI patients, and targeted therapies are needed in patients identified at highest risk.

TCT-72

Stent Thrombosis up to 9 Years Follow-up in Real-World Patients Undergoing Drug-Eluting Stent Implantation

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Background: The incidence and outcome of pts undergoing stent thrombosis (ST) post drug-eluting stents (DES) implantation remains controversial. We report the long-term follow-up (FU) of pts with ST post implantation of DES in the real-world clinical practice.
Methods: The DESIRE Registry is a large, prospective, non-randomized clinical trial evaluating the long-term clinical FU of pts undergoing elective or urgent percutaneous coronary intervention (PCI) with DES as the default strategy in a single center. From 05/02 to 05/11, 3,694 pts (5,568 lesions) were treated with 5,615 DES. Clinical FU was performed at 1, 6 and 12 months, and annually up to 9 years (median = 4,2 years). ST was defined according to the Academic Research Consortium criteria.
Results: During the late clinical FU (completed in 98%), the overall incidence of ST was 1.9% (n=69) given that 97% of patients were free from this event at 9 years. A total of 40 cases (58%) were classified as definite ST (with angiographic confirmation). The mean time from index procedure to the occurrence of definite ST was 1.9±1.7 years [34 cases in the very late phase (>1 year)]. Independent predictors of ST were acute MI (HR 3.14, p<0.01), current smoking (HR 2.05, p=0.03), multiple DES implanted (HR 2.11, p=0.003), lesion postdilatation (HR 0.51, p=0.02), significante lesion calcification (HR 2.01, p=0.01), and in-stent residual stenosis by QCA (HR 1.04, p<0.001).
Conclusion: In this large, prospective "real-world" registry, unselected patients undergoing DES implantation had low cumulative incidence of ST (1.9%), and 97% of patients were free from ST up to 9 years. Overall, the majority of ST occurred >12 months and were classified as definite ST (according to the ARC definition). Significant predictors of ST were: current smoking, diabetes, PCI in the setting of acute MI, multiple stenting implantation, balloon postdilata-tion, lesion complexity and stent underexpansion

TCT-73

Impact of Positive Peristent Vascular Remodeling After Sirolimus-eluting and Paclitaxel-eluting Stent Implantation on 5-year Clinical Outcomes: Intravascular Ultrasound Analysis From the POET, a Multicenter, Randomized Trial

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Background: Clinical implication of positive peristent vascular remodeling (PPVR) after drug-eluting stent(DES) implantation is not well defined.
Methods: The POET study was a multicenter, randomized trial which enrolled patients with stable or unstable angina. A total 226 patients (SES: n= 105, PES: n= 121) who underwent post-intervention and 9-month follow-up intravascular ultrasound analysis were followed clinically for 5 years. PPVR was arbitrarily defined as >10% increase in external elastic membrane volume index at follow-up. We investigated long-term outcomes of the patients according to the presence of PPVR at 9 months.
Results: Percent neointimal volume obstruction at follow-up was significantly smaller with SES than with PES (1.9±3.5% vs. 9.6±9.8%, p<0.001). However, PPVR (38% vs. 24%, p=0.019), and late acquired stent malapposition (LASM) (18% vs. 9%, p=0.034) occurred more frequently with SES than with PES. Unstable angina [odd ratio (OR)= 3.62(1.97-6.65), p < 0.001] and SES [OR = 1.86(1.03-3.38), p = 0.041] were independent risk factors of PPVR. The cumulative incidence of major adverse cardiac events at 5 years did not differ between the patient groups with and without PPVR. However, stent thrombosis (ST) was observed more frequently in patients with PPVR than those without PPVR (8.5% vs. 1.3%, p=0.007). The occurrence of ST did not differ between SES and PES (3.8% vs. 3.3%, p=0.838).

Table. Five-year clinical outcomes after DES implantation according to DES type and the presence of positive peristent vascular remodeling (PPVR)

	DES type		p-value	PPVR		p-value
	SES (n = 105)	PES (n = 121)		Yes (n = 71)	No (n = 155)	
MACE	13 (12.3%)	31 (25.6%)	0.006	20 (28.1%)	24 (15.4%)	0.120
MI	6 (5.7%)	6 (5.0%)	0.801	6 (8.5%)	6 (3.9%)	0.154
ST*	4 (3.8%)	4 (3.3%)	0.838	6 (8.5%)	2 (1.3%)	0.007
TLR	7 (6.7%)	21 (17.4%)	0.015	12 (16.9%)	16 (10.3%)	0.163
TVR	7 (6.7%)	25 (20.7%)	0.003	14 (19.7%)	18 (11.6%)	0.105

*Stent thrombosis: All patients had late or very late stent thrombosis.

Conclusion: PPVR and LASM were found more frequently with SES than PES, although the rate of ST did not differ significantly between the two DES types. However, patients who developed PPVR after implantation of DES experienced more frequently late or very late ST compared to those without PPVR. PPVR appears to be an important risk factor of late or very late ST.

TCT-74

ST-Elevation Myocardial Infarction (STEMI) due to Stent Thrombosis: An Enlarging Subgroup of High Risk Patients

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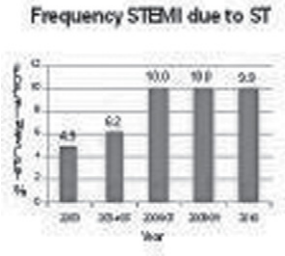
Background: Stent thrombosis (ST) is an increasing cause of STEMI, but outcomes with STEMI due to ST vs de novo coronary artery occlusion have not been well characterized.
Methods: From 2003-2010, 3305 consecutive pts with STEMI treated with primary PCI at Minneapolis Heart Institute (n=2086) and Cone Heart and Vascular Center (n=1219) were prospectively enrolled in our Registry. Outcomes were evaluated with Kaplan Meier estimates and Cox Regression.
Results: Stent thrombosis (ST) accounted for 8.5% (282/3305) of all STEMIs with the proportion increasing from 4.9% in 2003 to 9.9% in 2010. DES accounted for 31% of STEMI due to ST in 2003, increasing to 75% in 2006 and decreasing to 60% in 2009-10. Pts with ST vs de novo coronary artery occlusion had more diabetes, hypertension, prior MI, and prior CABG and had lower LVEF and a higher frequency of occluded infarct artery on initial angiography. Pts with ST had similar hospital mortality (5.3% vs 4.6%, p=0.55) but more hospital re-infarction (3.9% vs 1.2%, p=0.004), and at 5 years had more re-infarction (21.8% vs 10.0%, p<0.001) and more death or re-infarcton (35.7% vs 22.8%, p<0.001). After adjusting for differences in baseline risk, STEMI due to ST compared with de novo occlusion was an independent predictor of late re-infarction (HR 2.79 95% CI 1.92-4.03, p<0.001) and late death or re-infarction (HR 1.55, 95% CI 1.17-2.04, p=0.002).



Conclusion: Stent thrombosis accounts for an increasing proportion of STEMI pts and is associated with worse outcomes compared with de novo coronary artery occlusion. New strategies are needed to address this growing problem.