STEMI/NSTEMI/ACS

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TCT-213

Everolimus-eluting stent versus bare metal stent in proximal left anterior descending ST-elevation myocardial infarction

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Background: ST-elevation myocardial infarctions (STEMI) caused by proximal left-anterior descending (LAD) lesions have more myocardium at risk and worse outcomes than those located in other segments. The aim is to compare outcomes of patients with STEMI and proximal-LAD lesions treated with bare-metal stents (BMS) versus everolimus-eluting stents (EES).
Methods: The EXAMINATION trial randomized 1498 STEMI patients to BMS vs. EES. The primary endpoint was the patient-oriented combined of all-cause death, any-recurrent myocardial infarction (MI) and any-revascularization. The secondary endpoint included the device-oriented combined of cardiac death, target-vessel MI and target-lesion revascularization (TLR).
Results: STEMI with a proximal-LAD occlusion was observed in 290 patients (BMS=132 and EES=158). Both groups were similar except for diabetes (12.9% vs. 24.1%; p=0.016). At 1 year, the primary end-point was observed in 18.9% and 9.5% of patients treated with BMS and EES, respectively (p=0.023). The secondary end-point was observed in 11.4% and 5.1%, respectively (p=0.053). There were no differences in cardiac death (4.5% vs. 3.8%; p=0.750) and MI (1.5% vs. 0%; p=0.121). BMS had higher rate of TLR compared to EES (6.8% vs. 1.3%; p=0.014). Patients with proximal-LAD STEMI had higher mortality than patients with non proximal-LAD STEMI (5.5% vs. 2.9%; p=0.027). Proximal-LAD lesions treated with BMS tended to increase the risk of the primary end-point compared with other segments (18.9% vs. 13.0%; p=0.079). However, EES implanted in proximal-LAD had similar outcomes compared with other locations (9.5% vs. 12.0%; p=0.430). Adjusting for confounders, the interaction between BMS and proximal-LAD location was associated with the primary end-point.
Conclusions: Patients with STEMI and proximal-LAD lesions treated with EES have better outcomes compared with BMS at 1-year. Although further investigations are required, it seems reasonable to consider EES for proximal-LAD STEMI-lesions.

TCT-214

Five-year prognostic impact of distal embolization during primary percutaneous coronary intervention in ST elevation myocardial infarction patients treated with or without distal protection

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Background: The impact of angiographically visible distal embolization (DE) following primary percutaneous coronary intervention (PCI) on clinical outcome has been scarcely studied in patients with ST elevation myocardial infarction (STEMI). Moreover, the use of distal protection during primary PCI seems to improve both epicardial flow and left ventricular function, but has so far failed to impact clinical outcome. Thus, the objective of this study was to evaluate the association between (DE) and 5-year outcome in patients randomized to primary PCI with or without distal protection.
Methods: In this post-hoc study 591 STEMI patients were randomized to conventional primary PCI or primary PCI with distal protection. Primary outcome was 5-year major adverse cardiac events (all cause mortality, admission for heart failure and reinfarction).
Results: DE was observed in 8.3% of all patients. There seemed to be interaction between distal protection and DE in terms of MACE (p=0.08), all cause mortality (p=0.02) and reinfarction (p=0.06), but not admission for heart failure (p=0.40). DE was related to increased risk of admission for heart failure independently of distal protection (12.0% versus 5.0; p=0.015). The MACE rate was 31.3% for patients treated with standard PCI with DE compared to 24.8% for patients without DE (p=0.30), and 44.4% for patients treated with distal protection with DE compared to 17.9% for patients without DE (p=0.005). DE was not related to all cause mortality (p=0.52) or reinfarction (p=0.52) among patients treated with standard PCI, but was related to higher rates of mortality (p=0.012) and reinfarction (p=0.008) when distal protection was used.
Conclusions: The occurrence of DE during primary PCI leads to increased risk of development of heart failure. DE occurring during the use of a distal protection device aggravates the prognosis, whereas successful distal protection improves it.

TCT-215

Predictors of 1-year mortality at hospital discharge after ACS STEMI and NSTE-ACS: a new risk score from the EPICOR study

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Background: At hospital discharge after an ACS event, patients vary markedly in their prognosis. There is a need for a reliable prediction tool to identify patients with high mortality risk.
Methods: EPICOR (NCT01171404) is a prospective cohort study of 10568 consecutive hospital survivors after an ACS event (4943 STEMI and 5625 NSTE-ACS). 65.1% underwent PCI and 2.5% CABG. They were enrolled from 555 hospitals in 20 European and Latin American countries between October 2010 and March 2011. Postdischarge mortality was recorded up to 12 months. From over 50 potential predictor variables a new risk score for 1 year mortality was developed using forward Cox regression, and examined for goodness-of-fit and discriminatory power.
Results: 402 patients (3.8%) died within 1 year of discharge. We identified twelve highly significant independent predictors of mortality. In order of predictive strength they are: age, LVEF, poorer EQ-5D quality of life, elevated serum creatinine, COPD, in-hospital cardiac complications, PAD, no PCI or CABG after NSTEACS, low haemoglobin, male gender, on diuretics at discharge, elevated blood glucose. Combined into a new risk score excellent discrimination was achieved (C-statistic = 0.81). For both STEMI and NSTE-ACS there was a steep gradient in mortality across risk-score quintiles, with top quintile split into two deciles (see Table). One year mortality ranged from 0.5% in the lowest quintile to 18.5% in the highest decile. Note NSTE-ACS contributes over twice as many high-risk patients as STEMI.
Conclusions: Postdischarge mortality for ACS patients remains of concern. Our new user-friendly risk score can readily identify who is at high risk. Whether the poor prognosis of such patients can be improved warrants further study.

One year mortality by Quintiles / Deciles of Risk						
	STEMI		NSTE-ACS		Total	
	N	% died	N	% died	N	% died
Q1 (lowest risk)	1038	0.60%	1075	0.50%	2113	0.50%
Q2	1123	1.10%	991	0.90%	2114	1.00%
Q3	1109	2.30%	1005	1.80%	2114	2.10%
Q4	926	3.70%	1188	2.60%	2114	3.10%
D9 (next highest)	415	5.50%	642	6.70%	1057	6.20%
D10 (highest risk)	332	15.40%	724	19.90%	1056	18.50%