Comparison of Leaman weighing factor and individualized coronary angiographic area at risk assessment with autopsy findings

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Background: In the Syntax study the Leaman weighing factor is used for the evaluation of the left ventricular areas affected by the lesion. Taking the two main coronary circulation systems the scoring system orders predefined points to the segments of the coronary artery.

Methods: The coronary angiograms were analyzed retrospectively from the data of 19 patients deceased from ST-elevation myocardial infarction. The Leaman factor and the result of an individualized coronary angiographic area at risk assessment called Holistic Coronary Care (HCC) software were compared with the extent of infarction found by the autopsy.

Results: Results: Multivariate regression analysis showed significant correlation between the extension of the infarction detected by autopsy and the HCC segment number ($r=0.78$, $p=0.0002$), while there was no significant correlation with the Leaman factor ($r = 0.46$, $p = 0.08$).

Conclusions: With defining the individual circulation types with the HCC software it is possible to determine the left ventricular segments related to the lesion with better correlation than by Leaman weighing score.

TCT-479
Impact of Left Ventricular Dysfunction and Multi-Vessel Disease After Primary Percutaneous Coronary Intervention: Three-Year Outcomes from the HORIZONS-AMI Trial

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Background: Left ventricular (LV) dysfunction and multi-vessel disease (MVD) have been associated with greater mortality after ST-segment elevation myocardial infarction. We sought to evaluate their impact in patients treated with primary percutaneous coronary intervention (PCI).

Methods: Patients from the HORIZONS-AMI trial treated with primary PCI in whom baseline left ventricular ejection fraction (LVEF) was assessed by left ventriculography were included in this study. Early and late (3-year) outcomes were examined in groups of patients with reduced (<40%) and preserved (≥40%) LVEF, further stratified by the presence of MVD.

Results: 2,430 patients were included. Patients with reduced LVEF were older, were more likely to be female, have a prior history of MI, PCI and congestive heart failure (CHF), and present in CHF. Patients with reduced LVEF had greater 30-day (8.9% vs. 0.9%; HR [95% CI] = 9.81 [5.23,18.42]; p<0.0001) and 3-year mortality (17.1% vs. 3.7%; HR [95% CI] = 5.03 [3.37,7.50]; p<0.0001). Among patients with LVEF <30% (n=45), 30%-40% (n=157), 40%-50% (n=373), 50%-60% (n=659) and ≥60% (n=1196), the 3-year mortality was 29.4%, 13.5%, 6.4%, 3.8% and 2.9% respectively (p for trend <0.0001). MVD was associated with greater mortality in patients with preserved but not reduced LVEF. By multivariable analysis, LV dysfunction was the strongest predictor of 30-day and 3-year mortality.
Background: Among patients with acute ST-segment elevation myocardial infarction (STEMI), early generation drug-eluting stents (DES) improve efficacy but not safety compared with bare metal stents (BMS). Newer generation DES eluting everolimus (EES) and biolimus A9 (BES) have been shown to improve clinical outcomes compared with early generation DES. However, it remains to be determined whether the benefits of newer over early generation DES translate into improved safety compared with BMS among appropriately powered population with STEMI.

Methods: Individual patient data of 2665 patients with STEMI enrolled into two large scale randomized clinical trials comparing newer generation DES with BMS were pooled: EXAMINATION randomly assigned 1504 patients to treatment with EES or BMS, and COMFORTABLE AMI randomly assigned 1161 patients to treatment with BES or BMS. Random effect models were used to assess differences in clinical outcomes between newer generation DES and BMS for the pre-specified device-oriented composite of cardiac death, target-vessel reinfarction and target-lesion revascularization and the patient-oriented composite of death, reinfarction and any revascularization at one year.

Results: Newer generation DES substantially reduced the risk of the primary device-oriented composite outcome compared with BMS at one year (RR 0.58, 95% CI 0.43 - 0.79, p = 0.0004). Similarly, the risk of the primary patient-oriented composite outcome was lower with newer generation DES than BMS (RR 0.79, 95% CI 0.63 to 0.96, p = 0.02). Differences in favor of newer generation DES were driven by both, a lower risk of repeat revascularization of the target lesion (RR 0.33, 95% CI 0.20 - 0.52, p = 0.0001) and a lower risk of target-vessel reinfarction (RR 0.36, 95% CI 0.14-0.92, p = 0.05). Newer generation DES reduced the risk of acute (RR 0.38, 95% CI 0.17-0.85, p = 0.021) and overall (within one year) definite stent thrombosis (RR 0.35, 95% CI 0.16 - 0.75, p = 0.006) compared with BMS.

Conclusions: Among patients with STEMI, newer generation DES improved safety and efficacy compared with BMS throughout one year. It remains to be determined whether these differences in favor of newer generation DES remain sustained during long-term follow-up.

TCT-482
4 Years Follow Up After One-stage Percutaneous Coronary Intervention Of Left Main Stenosis And Infarct-related Left Anterior Descending Or Circumflex Arteries In Patients With Acute Coronary Syndrome With ST-elevation
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Background: The purpose of this study was to determine safety and efficiency of one-stage PCI of left main coronary artery (LMCA) and infarct-related left anterior descending (LAD) or left circumflex (LCX) arteries in ST-elevation myocardial infarction (STEMI). Even though STEMI guidelines recommend to limit the procedure to infarct-related artery there are cases when it’s impossible to complete the PCI of the infarct-related LAD or LCX without affecting LMCA. Appropriateness of one-phase PCI in such cases needs to be investigated.

Methods: 281 PCI of LMCA were performed during the last 5 years. There were 57 stable and 224 ACS patients among them. LMCA lesion as the reason of ACS was in 19 patients, they were not included into the study. In other 205 cases the LAD or LCX were symptom-related accompanying significant LMCA lesions. The ACS subgroup (205 patients) contained 108 non-ST ACS patients and 97 STEMI patients. These 97 STEMI patients with LMCA stenosis and infarct-related LAD or LCX were of major interest and were followed up for 4 years.

Results: LAD was infarct-related in 65% of cases, LCX - in 35%. 7 patients were admitted with cardiogenic shock. Concomitant RCA lesion was in 60% of cases. Most procedures were performed using transfemoral approach (81%), IABP was used in 41% of