TCT-225

Relationship Between the SYNTAX Score and Major Bleeding after PCI: Analysis from the ACUITY Trial

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Background: The SYNTAX score (SS) has demonstrated strong prognostic utility for ischemic outcomes in patients undergoing PCI for stable ischemic disease, non-ST-segment elevation acute coronary syndromes (NSTEACS), and STEMI. We sought to determine the relationship between the SS and bleeding risk in patients undergoing percutaneous coronary intervention (PCI) for NSTEACS.

Methods: We stratified 2,627 patients from the ACUITY in whom PCI was performed into SS groups based on score tertiles (SS <7, 7-12, and >12). Thirty-day major bleeding rates were determined for each group.

Results: As demonstrated in the Figure, 30-day major bleeding rates were significantly greater in the highest SS tertile (>12) compared with intermediate (7-12) and lowest (<7) tertiles. By multivariable analysis, the SS was independently associated with 30-day major bleeding (HR per 1 SS point: 1.03, 95% CI: 1.01 to 1.04, p=0.003).

Conclusions: In the large-scale ACUITY trial, in addition to its previously described prognostic utility for adverse ischemic events, the SS was independently associated with major bleeding after PCI for NSTEACS.

TCT-226

Impact of baseline renal failure on long-term clinical outcomes after primary angioplasty for acute myocardial infarction

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Background: Renal failure (RF) is associated with increased cardiovascular mortality in patients with acute coronary syndromes (ACS). Nevertheless patients with RF are less likely to receive reperfusion therapy during AMI. This study is the first report from a contemporary randomized controlled trial (RCT) addressing the impact of RF on long-term clinical outcomes in patients undergoing primary PCI for AMI.

Methods: 745 patients with STEMI underwent primary PCI were enrolled in this study and were divided in two groups according with the baseline estimated creatinine clearance (calculated by the use of the Cockcroft-Gault formula) and the National Kidney Foundation criteria (group A: 176 patients, class III-IV-V; group B: 569 patients, class I-II).

Results: Multivariate logistic regression shows a significantly correlation of RF with 3-years cardiovascular death (Table 1). Kaplan-Meier analysis show a significantly decreased of the event-free survival curves for 3-years CV death (log rank <0.001, Figure 1) in patients with RF.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>OR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-vessel disease</td>
<td>0.433</td>
<td>0.193-0.974</td>
<td>0.043</td>
</tr>
<tr>
<td>EF &lt; 50%</td>
<td>0.377</td>
<td>0.160-0.889</td>
<td>0.026</td>
</tr>
<tr>
<td>Age &gt; 75 years</td>
<td>0.29</td>
<td>0.114-0.740</td>
<td>0.01</td>
</tr>
<tr>
<td>Renal failure</td>
<td>0.259</td>
<td>0.100-0.675</td>
<td>0.006</td>
</tr>
<tr>
<td>LM culprit vessel</td>
<td>0.062</td>
<td>0.006-0.601</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Conclusions: RF is significantly associated with 3-years CV death in patients with AMI treated with successful primary PCI despite no differences in term of treatment between patients with or without RF.

TCT-227

Comparison of Pharmacoinvasion and Primary PCI Strategy in STEMI patients, Evidence from Cardiac Magnetic Resonance Imaging

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Background: Although PPCI has become the preferring reperfusion modality for STEMI nowadays, thrombolysis remains useful when PPCI will be remarkably delayed, which is still common in real practice. However, there are concerns on the weakness of single thrombolysis, especially re-occlusion of the vessel. It has been suggested that early PCI after thrombolysis might improve its efficacy. We used CMR to further investigate this "pharmacoinvasion" strategy.

Methods: Current data came from an ongoing RCT comparing pharmacoinvasion and PPCI for STEMI within 12h. Pharmacoinvasion was composed of t-TPA thrombolysis and angiography/PCI 3-24h thereafter except for thrombolysis failure, in which situation a rescue PCI would be done immediately. CMR was performed 2-8d after reperfusion.

Results: 51 in pharmacoinvasion and 49 patients in PPCI group received CMR assay, representing 80.1% of total patients. Rate of successful thrombolysis was 84.4% (TIMI flow grades ≥2 in culprit artery). Median time between thrombolysis and angiography was 7.7h (3.6 to 16.5h). 49 in pharmacoinvasion and all patients in PPCI group received stenting. Symptom-to-CMR time and other baseline characteristics were similar except for door-to-reperfusion time (door-to-needle/door-to-balloon time for thrombolysis/PPCI), which was significantly shorter in pharmacoinvasion group (44±22min vs. 86±41min, p<0.001). Most of the CMR results were statistically equal between pharmacoinvasion and PPCI arms: LVEF 52±10.7% vs. 49±11.7%, p=0.167; Intramyocardial hemorrhage 43.1% vs. 48.9%, p=0.548; Microvascular obstruction (MVO) 64.7% vs. 65.3%, p=1.000; MVO size (proportion to LV myocardium) 2.0±2.8% vs. 2.1±2.9%, p=0.818. However, infarction size (proportion to LV myocardium) was significantly lower in pharmacoinvasion group: 23.5±12.3% vs. 29.7±16.2%, p=0.034.

Conclusions: Current CMR data suggested that pharmacoinvasion strategy may have comparable efficacy as PPCI. Much shorter door-to-reperfusion time showing in this
study may be the major reason for smaller infarction size, which might translate to a better long-term prognosis. Expansion of sample size may help to get more persuasive conclusion.

TCT-228

Does intracoronary administration of metabolic cytoprotector Mexicor during rescue PCI limit reperfusion injury of the myocardium in patients with AMI.

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Background: To date, endovascular reperfusion is the essential method for the treatment of AMI, however it has some negative aspects, such as reperfusion injury of the myocardium, distal embolism, etc. Intracoronary administration of drugs provides their fast transport to the target organ and can play a decisive role in the improvement of the results of treatment of AMI.

Methods: The study comprised 253 patients (average age - 56±7 years) with acute occlusion of the proximal or middle segment of the LAD and absent antegrade blood flow (TIMI 0), who underwent successful recanalization of IRA within the first 6 hours after the onset of AMI. Prior to angiography, all patients were randomized into 2 groups. Patients from Group 1 (n=126) received intracoronary Mexicor (0.2 g). Patients from Group II (control, n=127) did not receive. Intracoronary administration was performed through a special microcatheter during 10 min. Blood samples for markers of cardiomyocytes injury (Troponin I, myoglobin) were taken during recanalization of IRA, in 12 and 24 hours after the procedure.

Results: In hospital course of the disease was rather uneventful, 1 patient (0.8%) died in Gr. I and 3 (2.4%) – in Gr. II. Average values of Troponin I at 12 hours after the procedure in Grs. I and II were 311±47 and 632±39 ng/ml, respectively (p<0.05). In the long-term after the procedure, in average – in 6,8±0,7 months, the survival in Gr I was 96.8%, in Gr II - 87.6% (p>0.05). Baseline clinical indices in both groups were not significantly different. The increase of LV EF in Grs. I and II was 9.2±5.3% and 4.1±2.8%, respectively (p~0.05). We also noted a significantly better dynamics of contractility on infarct-related segments of the LV in Gr I in comparison with Gr II (p<0.055) (table 1).

Conclusions: Our study suggests that intracoronary administration of metabolic cytoprotector Mexicor upon accordance with a special technique limits reperfusion injury of the myocardium and contributes to the preservation of structural and functional integrity of cardiomyocytes after antegrade blood flow restoration in IRA within the first hours after the onset of AMI.

TCT-229

Efficacy of an Embolic Protection Stent as a Function of Symptom Onset to Balloon Time in STEMI: The MASTER Trial

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Background: The INFUSE-AMI trial randomized patients with anterior STEMI under-going primary PCI with bivalirudin anticoagulation to intralesion (IL) bolus abciximab vs. no abciximab, and to thrombus aspiration vs. no aspiration. The primary endpoint was MRI infarct size (IS, % of left ventricular mass) at 30 days. Time to reperfusion was classified as <3 or ≥3 h. Results: There were 280 (62%) patients with <3h delay and 170 (38%) with ≥3h delay. Patients with longer delay were significantly older, more often women and diabetics. IS was marginally smaller in patients with shorter delay to reperfusion (16.4% [6.3, 29.9] vs. 18.1% [10.5, 28.4], respectively, P=0.07). However, shorter delay to reperfusion was not associated with higher rates of final TIMI 3 flow or myocardial blush grade 2/3. There was significantly lower mortality and morbidity at 30 days and at 1 year in patients with shorter delay (Figure). Delay ≥3h was an independent predictor of 1-year MACCE, but not of death or MACCE

Conclusions: Even with contemporary primary PCI, longer delay to reperfusion negatively impacts clinical outcome. This effect appears not to be mediated by less successful reperfusion or by a markedly larger infarct size.

TCT-230

Impact of Delay to reperfusion on Infarct Size and Clinical Outcomes in Patients with STEMI: The INFUSE-AMI Trial

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Background: Longer delay from symptom onset to reperfusion has been linked to increased mortality and worse clinical outcome. The mechanism underpinning this association is not entirely clear. Thus, we evaluated the impact of the delay from symptom onset to reperfusion(<3 vs. ≥3 h) on infarct size and clinical outcomes at 30 days and 1 year in patients with STEMI treated with primary PCI.

Methods: The INFUSE-AMI trial randomized patients with anterior STEMI undergoing primary PCI with bivalirudin anticoagulation to intralesion (IL) bolus abciximab vs. no abciximab, and to thrombus aspiration vs. no aspiration. The primary endpoint was MRI infarct size (IS, % of left ventricular mass) at 30 days. Time to reperfusion was classified as <3 or ≥3 h. Results: There were 280 (62%) patients with <3h delay and 170 (38%) with ≥3h delay. Patients with longer delay were significantly older, more often women and diabetics. IS was marginally smaller in patients with shorter delay to reperfusion (16.4% [6.3, 29.9] vs. 18.1% [10.5, 28.4], respectively, P=0.07). However, shorter delay to reperfusion was not associated with higher rates of final TIMI 3 flow or myocardial blush grade 2/3. There was significantly lower mortality and morbidity at 30 days and at 1 year in patients with shorter delay (Figure). Delay ≥3h was an independent predictor of 1-year MACCE, but not of death or MACCE.

Conclusions: Compared to standard stents, the MGuard Embolic Protection Stent improves reperfusion success in both patients with rapid and delayed time to reperfusion, although the absolute magnitude of benefit may be greater in patients with delays from symptom onset to reperfusion.