TCT-492
Impact of Vessel Size on Angiographic and Clinical Outcomes of Revascularization with Drug-Eluting Stent in Patients with Acute Myocardial Infarction
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Background: The association between infarct artery size and clinical outcomes after percutaneous coronary intervention has not been characterized. We hypothesized that patients with large vessel infarction would have worse clinical outcomes.

Methods: A total of 3,274 patients enrolled in the Korea Acute Myocardial Infarction Registry who underwent only one DES implantation for IRA were grouped according to infarct vessel diameter: group I (small vessel, implanted DES diameter ≤ 2.75mm; N=635, male 60.3%) and group II (large vessel (implanted DES diameter >2.75mm, N=2639, male 77.1%). Patients with multi-vessel or left-main disease were excluded. The primary clinical end point was major adverse cardiac events (MACE), outcome definition, and target lesion revascularization at 12 months after percutaneous coronary intervention (PCI).

Results: Patients in group I were older (62.4±12.4 vs. 58.6±12.5 years, p<0.001); had higher prevalence of diabetes (24.8 vs. 19.8%, p=0.009), hypertension (45.7 vs. 38.5%, p<0.001), and stenotic lesions in the left circumflex coronary artery (28.3 vs. 11.2%, p<0.001); and were more likely to have lower level of maximal troponin-I (37.8±17.7 vs. 55.9±112.7 ng/mL, p<0.001). There were no differences between the group in Killip classification, dyslipidemia, lesion characteristics, stent length, pre- and post-PCI Thrombolysis In Myocardial Infarction flow (TIMI) grade. In-hospital mortality was higher in group I (3.0 vs. 1.4%, p<0.001). During follow-up, however, the ratios of composite at 1, 6, 12 months were not statistically significant between the two groups. In multivariate analysis, I (3.0 vs. 1.4%, p=0.009), hypertension (45.7 vs. 38.5%, p<0.001), and age 65 years (OR, 4.106; 95% CI, 1.287 – 12.049; p<0.017), procedural TIMI flow grade 0 (OR, 2.802; 95% CI, 1.021 – 7.693; p=0.045), ejection fraction <40% (OR, 7.042; 95% CI, 2.551 – 19.607; p<0.001) were independent predictors of in-hospital mortality.

Conclusions: Patients with small vessel infarction had similar angiographic and clinical outcomes, compared to those with large vessel infarction after PCI with DES during a 12-month clinical follow-up.

TCT-493
The Clinical Utility of High-Sensitive Troponin T to Predict Infarct Size, Left Ventricular Function and Adverse Outcome in Patients with First ST Elevation Myocardial Infarction Treated with Primary Percutaneous Coronary Intervention
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Background: The use of advanced imaging modalities for early determination of infarct size is limited in daily practice and therefore, it would be of particular use to estimate infarct size and prognosis by troponin (cTnT).

Methods: The value of peak and serial 6h high-sensitive (hs) cTnT for estimation of infarct size as 48th cumulative CK release (Q48CK), LV function at 3 months as wall motion score index (WMSI) and LV ejection fraction (LVEF), and adverse clinical outcome as the composite of all-cause death, ICD implantation or hospitalization for heart failure, was studied in patients who underwent primary PCI for first STEMI.

Results: In 188 consecutive patients (61±12 yrs, 72% mm), peak and all fixed time hs-cTnT values were significantly correlated with Q48CK, WMSI and LVEF, of which the value at 24h after onset of symptoms (hs-cTnT24) demonstrated the best correlation (r=0.86, 0.47 and –0.59 [p<0.001], respectively). With the addition of hs-cTnT values separately to multivariate regression models, all were independent predictors of Q48CK, WMSI and LVEF but hs-cTnT24 was demonstrated to have the greatest impact on the outcomes with an increase in R2 of 0.51, 0.09 and 0.18 (p<0.001, respectively). Moreover, all cTnT values independently predicted adverse clinical outcome, of which hs-cTnT24 again showed the largest influence (HR 3.77 [95%CI 2.12-6.73], p<0.001, Figure).

Conclusions: Not only peak, but all fixed time hs-cTnT values were predictive of infarct size, LV function 3 months and adverse clinical outcome 1 year after STEMI particularly 24h after the onset of symptoms.

TCT-494
Impact of Level of Physician Training on Transfer of ST Segment Elevation Myocardial Infarction
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Background: Patients (pts) presenting with STEMI to facilities that do not perform PCI receive lytics and/or are transferred. AHA’s Mission: Lifeline “Strategies for the Ideal STEMI-Referral Hospital” recommends Door In Door Out (DIDO) time within 30 minutes for the referring hospital (1). The Omaha Veterans Administration Medical Center (OVAMC) transfers pts presenting with STEMI to its affiliate, The Nebraska Medicine (TNMC). These pts are treated/ transferred from the emergency room (ER) by the OVAMC staff physicians and by residents/fellows after hours. A STEMI task force was formed at the OVAMC in the fall of 2011 to study the transfer process and outcomes of patients from the ER to TNMC.

Methods: Multiple parameters were tracked including the (DIDO) time, initial EKG, medications, time of day, transportation and physicians. Significant protocol changes were put in place after the initial observation period from Dec 10, 2011 to Feb 2, 2012 (period 1). A STEMI monitoring committee was established at OVAMC. Data on DIDO was collected from Feb 11, 2011 to May 23, 2012 (period 2). Wilcoxon rank sum test was used to compare DIDO times between periods and p-values less than 0.05 are statistically significant.

Results: Median DIDO times significantly decreased from period 1 to period 2 in all groups. Staff physicians/SP/had significantly lower DIDO than resident/fellow (R/F) in period 2 (p=0.0018)(table 1). The rate of successful DIDO within 30 min improved for all pts. SP improved from 0% to 92% (p<0.033) but R/F did not increase to 25% (p=1.0)

Door In Door Out (min)

<table>
<thead>
<tr>
<th># Patients SP/RF</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Median Change</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Patients SP median</td>
<td>83.5 (30-161)</td>
<td>26.5 (15-67)</td>
<td>57</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Staff Physician SP median</td>
<td>52 (48-56)</td>
<td>20 (15-39)</td>
<td>32</td>
<td>0.035</td>
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<td>Resident/Fellow RF median</td>
<td>84.5 (30-161)</td>
<td>32.5 (26-67)</td>
<td>52</td>
<td>0.0074</td>
</tr>
</tbody>
</table>

Conclusions: 1. Streamlining the transfer process of STEMI patients can have a significant impact on DIDO time. 2. The level of training of the physician can have a significant impact on DIDO performance measures. 3. Transferring facilities that accept STEMI patients must have a streamlined DIDO protocol and E.R. level trained physicians in order to meet guidelines.

TCT-495
Percutaneous, trans-endocardial injection of bone marrow derived mononuclear cells significantly improves left ventricular ejection fraction in patients following acute myocardial infarction: ALSTER Stem cell trial
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Background: Patients with large myocardial infaracts (MI) suffer from left ventricular (LV) remodeling irrespective of successful revascularization; this process may be prevented by cardiac stem cell therapy. Intracoronary application of mononuclear cells derived from bone marrow (BMC) is safe but not sufficiently effective; trans-endocardial application may be more effective. Here we describe the re-sults of the single-center, prospective, controlled, open-label ALSTER-Stem Cell trial. Patients with symptomatic heart failure following acute MI received trans-endocardial application of BMC to improve left ventricular (LV)-function and clinical outcome.

Methods: We recruited 12 patients following acute MI with LVEF<45% measured by cardiac MRI (CMR) and NYHA class II despite successful revascularization. A subgroup of patients (n=11) included in the previously published LPS1A/n/n trial also receiving serial CMR measurements was used as a matched control group. 19±3 days after revascularization patients were subjected to injection of BMC into the infarct border zone employing the MYOSTAR injection catheter following electroanatomical LV-mapping via the NOGA-XP system (Biosense Webster, Diamond Bar, USA). Measurements of the CMR and further clinical investigations (rehospitalisation for decompensated heart failure, 6min-walk-test, NT-proBNP-levels) were performed at baseline and 6 months follow up.

Conclusions: 1. Streamlining the transfer process of STEMI patients can have a significant impact on DIDO time. 2. The level of training of the physician can have a significant impact on DIDO performance measures. 3. Transferring facilities that accept STEMI patients must have a streamlined DIDO protocol and E.R. level trained physicians in order to meet guidelines.