Results: We found that EF increased significantly (+7.9±1.5%) compared to control (+0.6±1.9%), p=0.008. This effect was driven by a reduction of LV-end-systolic-volume by −27.5±6.5ml (p<0.001); LV-end-diastolic-volume and scar-volume remained unchanged. NYHA class improved significantly after cell therapy (−0.75±0.13), control group patients showed less improvement (−0.18±0.2), p=0.04. The findings were also translated into enhanced clinical assessments.

Conclusions: Patients with heart failure due to reduced EF following acute MI can be safely treated with trans-endoocardial injection of BMC. The data support the hypothesis that trans-endoocardial cell therapy with autologous BMC following large acute infarcts may be a suitable therapeutic strategy to prevent LV remodeling and amplify endogenous regeneration.

TCT-496
Physician’s Procedure Volume And Not Years of Experience, Determine Needle-to-ballon Time in Primary Percutaneous Coronary Intervention

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Background: This study aimed at evaluating physician and procedural variables affecting needle-to-ballon time in primary percutaneous coronary intervention. We also assessed if needle-to-ballon time (NTB) varies during regular hours versus off-hours.

Methods: Total of 452 consecutive patients from 06/2010 to 03/2012 presenting with ST-elevation myocardial infarction in a community medical center were included in the study. Physician’s experience was calculated in number of years in interventional practice and physician procedure volume in number of PCI performed annually. Time of arrival was divided into regular hours (7AM-4PM) and off-hours (4PM-7AM).

Results: The average patient age was 65 years and 59% were male. The mean NTB was 18.53 ± 8 minutes. Patient with transradial access had shorter NTB than transfemoral access (13.37 ± 18.53 minutes, p < 0.001). There was no difference in NTB between patients presenting during regular hours (7AM-4PM) compared to those presenting during off-hours (4PM-7AM) (18.19 ± 6.88 vs 18.93 ± 9.13, p > 0.5).

Physician’s experience (coefficient −0.10, p = 0.03) and procedure volume (coefficient −0.63, p < 0.0001) showed negative correlation with NTB. In multivariate analysis after adjusting for access sites and work experience, procedure volume was the only predictor of NTB (p < 0.001). Figure-1 shows regression diagnostic plot.

Conclusions: Physician’s procedure volume and not the years of experience, determines the needle-to-balloon time in patients undergoing primary PCI Physician performance as assessed by needle-to-balloon time, is not affected by the time of the day.

TCT-497
ST Segment Elevation Acute Myocardial Infarctions Diagnosed By the Emergency Department: Impact on False Positive Calls on Door-To-Balloon Time

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Background: Primary PCI is the therapy of choice for STEMI. The emergency department (ED) activation of the cardiac catheterization lab (CCL) team, as part of a “code MI” protocol, is often precipitated in order to achieve the fastest door-to-balloon time (DTB). However, the diagnosis of AMI may not be confirmed if the “code MI” is canceled by the interventional cardiologist or if the coronary angiography performed does not reveal any significant coronary artery disease.

Methods: We reviewed all “code MI” admitted during subsequent 7 years in a tertiary referral center. We analyzed the therapies received by the patients who underwent emergent coronary angiography during the “code MI” activation (PCI, CABG or no intervention). A “false positive rate” (FP) was compounded by adding the canceled “code MI” patients to the cases that did not need any intervention after diagnostic coronary angiography.

Results: There were 1230 calls of “code MI” by the ED; 181 (14.71%) were canceled by the interventional cardiologists, and 124 patients (10.08%) had nonobstructive CAD by the emergent coronary angiography. 652 (53.08%) of the “code MI” were called during 6 AM-9.30 PM Mon-Fri (when the CCL were routinely open and staff was on premiers) (group 1; FPR=24.97%); 168 (13.65%) cases were called between 9.31 PM-5.59 AM (week nights) (group 2; FPR=30.35%) and 410 (33.33%) cases were called between Fri 9.31 PM- Mon 5.59 AM (weekends) (group 3; FPR=24%)- when the CCL were closed and staff had to drive in. There were no significant differences noted when comparing the FP ratios of called “code MI” between weekdays, weeknight and weekends (p=0.3). A significant negative correlation was noted between the FP rates and the DTB time during the entire observed period (r=-0.87; p<0.0005).

Conclusions: A significant number of false “code MI” are called by the ED throughout the weekdays and/or the weekend. A higher false positive rate was correlated with a lower door-to-balloon time. There is a need to optimize the diagnosis of STEMI in the ED in order to improve the care of the coronary patients and the use of resources in the CCL.

TCT-498
Chronic Myocardial Tissue Effects of Intracoronary Supersaturated Oxygen in a Porcine Model of Anterior Myocardial Infarction

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Background: Clinical evidence suggests that supersaturated oxygen (SSO2) therapy improves left ventricular function and reduces myocardial infarct (MI) size. However, its chronic myocardial tissue effects remained unknown. In this study, we hypothesized that chronically improved left ventricular function and reduced MI size with SSO2 treatment in porcine model of MI.

Methods: Left anterior descending coronary arteries of 20 swine were balloon-occluded for 60 minutes, stented, and randomized to 90-min. intra-coronary infusion of SSO2 (pO2 760-1000 mmHg) or saline (normoxemic Sham: pO2 150-200 mmHg) via TherOx DownStream® System at 50 mL blood/min. Animals were evaluated by echocardiography and histopathology after 7 or 30 days.

Results: Control infarcts were small on the background of only 60 min. of ischemia-reperfusion in order to maintain low mortality, which indeed was minimal. In such model of small-sized ischemia-reperfusion induced MI, there was a trend for reduced incidence of MI scars microscopically in the SSO2 treated animals compared to the Sham animals which was equivocal at Day 7 and slightly more pronounced at 30 days. Histopathologically assessed MI volume trended toward reduction on Day 30. Echocardiographically assessed cardiac function was impaired after MI (reduced ejection fraction (EF) and increased wall motion score index (WMSI)), followed by a trend toward improved left ventricular recovery as evidenced by the improvement of EF and regional anterior WMSI in the oxygen treated MI animals, more pronounced at 30 days than 7 days (Table).

<table>
<thead>
<tr>
<th>7-Day MI + SSO2 (N=5)</th>
<th>7-Day MI + Sham (N=5)</th>
<th>30-Day MI + SSO2 (N=5)</th>
<th>30-Day MI + Sham (N=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal EF</td>
<td>55.9 ± 2.5</td>
<td>55.5 ± 4.0</td>
<td>50.9 ± 4.0</td>
</tr>
<tr>
<td>Anterior WMSI</td>
<td>1.30 ± 0.18</td>
<td>1.37 ± 0.46</td>
<td>1.40 ± 0.22</td>
</tr>
<tr>
<td>HISTOLOGIC MI volume</td>
<td>3.05 ± 1.32</td>
<td>3.2 ± 2.50</td>
<td>0.65 ± 0.95</td>
</tr>
<tr>
<td>MI to total myocardium volume ratio</td>
<td>0.034 ± 0.016</td>
<td>0.038 ± 0.029</td>
<td>0.060 ± 0.011</td>
</tr>
</tbody>
</table>

Number of infarcted areas
| 78 | 87 | 41 | 54 |

Conclusions: In a porcine model of anterior MI, intracoronary treatment with hyperoxemic SSO2 caused no coronary thrombosis or any toxicity (arterial, distal myocardial or systemic) after 7 or 30 days. A trend was observed toward reduced infarct size in histology, as well as toward better recovery of global and regional contractility in echocardiograms at 30 days.