Aqueous Oxygen Therapy for ST Segment Elevation Myocardial Infarction: AMIHOT Trial Safety Report and Enrollment Completion

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Background: Although rapid coronary reperfusion in ST segment elevation myocardial infarction (STEMI) improves left ventricular function and mortality, epicardial vessel patency does not fully ensure nutrient flow at the tissue level. Animal and Phase I human testing of the TherOx® Aqueous Oxygen (AO) System (TherOx Inc., Irvine, California) suggests that percutaneous coronary infusion of autologous blood mixed with hyperoxic saline may help overcome the downstream barrier to oxygen delivery in ischemic zones and improve myocardial salvage following percutaneous intervention for STEMI.

Methods: A Phase II randomized international trial is designed to evaluate the efficacy of regional AO therapy in STEMI.A sub-selective catheter positioned in the infarct artery delivers AO for 90 minutes at 75 ml/minute. Contrast echocardiography performed following intervention and before randomization is repeated at 24 hours, and days 30 and 90. Resting SPECT myocardial perfusion scans are obtained day 14. Primary endpoints include regional wall motion scores, SPECT perfusion defects, and ST segment resolution.

Results: Two hundred patients have been randomized after 20 run-in cases. None of the 100 patients assigned to treatment experienced hemorrhagic or electrophysiologic instability during infusion. Repeat angiography when performed following AO therapy documented perfusion catheter stability and maintenance of TIMI 3 flow. Planned interim analysis performed after randomization of the first 200 patients demonstrated no safety concerns and there were no unanticipated major cardiac events. Enrollment of the 270 patient cohort is to be completed by January, 2003.

Conclusion: Preliminary results suggest that regional hyperoxicemiac therapy appears to be safe and can be readily applied in institutions performing primary angioplasty for STEMI. Conclusions regarding the promise of this new therapeutic modality to improve recovery of left ventricular function requires longer-term follow-up.

9:30 a.m.

Sex Disparities in the Treatment of Non–ST-Segment Elevation Acute Coronary Syndromes

Andra L. Blooming, L. Kristin Newby, Anita Chen, Eric D. Peterson, Kelly Trynosky, Deborah Diercks, William E. Boden, Matthew T. Roe, E. Magnus Ohman, W. Brian Gibler, Judith S. Hochman, University of Cincinnati, Cincinnati, OH; Duke Clinical Research Institute, Durham, NC

Background: No large-scale examination of sex disparities in the management of acute coronary syndromes (ACS) has been done since publication of the revised ACC/AHA Guidelines for the Diagnosis and Treatment of non–ST-Elevation Acute coronary syndromes (NSTE ACS).

Methods: We conducted a retrospective data analysis from the CRUSAIDE Initiative, which enrolls US pts with NSTE ACS (ST-segment depression or transient elevation or positive cardiac markers). We examined sex differences in the use of acute and discharge medications, in-hospital procedures, discharge interventions, and in-hospital outcomes.

Results: Of the 35,835 pts (41% women) in the study, women were older and had more diabetes and hypertension but less prior MI or revascularization (Table). Women less often received acute aspirin, heparin, GP IIb-IIIa or ACE inhibitors. Discharge treatments were similarly disparate for use of aspirin, beta blockers, ACE inhibitors, and statins. Women were at higher risk for death (5.6% vs 4.3%, p<0.0001), post-admission MI (4.0% vs 3.5%, p=0.03), CHF (12.1% vs 8.8%, p<0.0001), stroke (1.1% vs 0.8%, p=0.003), and RBC transfusion (17.2% vs 13.2%, p<0.01).

Conclusion: Despite higher risk-characteristics at presentation and greater in-hospital risk, women with NSTE ACS are consistently treated less aggressively than men. Lower use of evidence-based therapies was observed in women even after adjusting for important differences between groups.

9:45 a.m.

Comparison of Treatments

<table>
<thead>
<tr>
<th>Acute Interventions, n (%)</th>
<th>Women</th>
<th>Men</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>11,960 (89.6)</td>
<td>18,362 (91.6)</td>
<td>0.87 (0.81-0.93)</td>
</tr>
<tr>
<td>Heparin (any)</td>
<td>10,929 (80.0)</td>
<td>16,993 (84.0)</td>
<td>0.92 (0.88-0.98)</td>
</tr>
<tr>
<td>Beta blocker</td>
<td>10,007 (75.8)</td>
<td>15,196 (77.7)</td>
<td>0.99 (0.94-1.04)</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>5,551 (42.4)</td>
<td>8,176 (42.2)</td>
<td>0.95 (0.91-1.00)</td>
</tr>
<tr>
<td>GP IIb-IIIa inhibitor</td>
<td>3,574 (28.7)</td>
<td>7,261 (38.6)</td>
<td>0.86 (0.82-0.92)</td>
</tr>
</tbody>
</table>

Procedure Use, n (%)

- Diagnostic cath: 8,701 (60.1) vs 15,106 (71.1), p=0.08 (0.81-0.91)
- PCI: 4,516 (31.4) vs 8,555 (40.4), p=0.91 (0.86-0.96)
- CABG: 1,284 (9.0) vs 2,941 (14.0), p=0.95 (0.54-0.64)

Primary Angioplasty is More Cost-Effective Than Prehospital Thrombolysis for Patients Within 90 Minutes From a Percutaneous Coronary Intervention Center: One-Year Follow-Up of a CAPTIM Substudy

Gerald Vancrest, Eric Bonnfoey, Helene Bouvaist, Stephanie Marliere, Jean Cassagnes, Paul Toublou, Jacques Machecourt, The CAPTIM Study Investigators, University Hospital, Grenoble, France

Background: In the CAPTIM study, primary coronary angioplasty (PCA) was as efficient as pre-hospital thrombolysis (PHT) in patients (pts) with acute myocardial infarction (MI) within 90 minutes from a coronary intervention (PCI) center. We compared the in-hospital and 1 year cost-effectiveness of PCA and PHT in a predefined subset of pts from the CAPTIM study.

Methods: 299 consecutive pts were used for analysis (PCA n=149, PHT n=150, men 80%, mean age=59±12 yrs, anterior wall MI 46%). For each pt, real costs were obtained for pre-hospital care, key hospital resources, medications, biological and X-rays examination, catheterization devices, and staff. One year cumulative costs included costs of initial hospital, plus medications, rehabilitation, examinations, angiographies, revascularizations and re-hospitalizations occurring after the acute phase.

Results: The 2 groups were similar for baseline data and characteristics of MI. Initial hospitalization was shorter after PCA than after PHT (9.5 vs. 10.5 days, p=0.009), due to more frequent emergent or planned angioplasty in the PHT group (42% vs 10% p<0.001). Median in-hospital real cost were 6097 € in the PCA and PHT respectively (p=0.008). Results at 1 year follow-up (100% completed) are listed bellow.

Conclusion: When compared to PHT, PCA is a dominant strategy for treatment of MI in pts within 90 minutes of a PCI center, driven by a shorter in-hospital stay and a significant reduction of non planned revascularizations.

9:30 a.m.
Results: Compared to patients transferred without thrombolytic therapy (NOTHRM), patients transferred on thrombolytic therapy (THRM) had a lower rate of mortality post PCI (3.2% vs. 5.8%; p < 0.001), less post-PCI renal failure (1.4% vs. 2.2%; p = 0.0001) and were less likely to have emergency surgery post PCI (0.4% vs. 0.7%). Based on a validated mortality risk model, the observed mortality of the THRPM patients was identical to the expected mortality from the model (ratio O/E = 1.0), whereas the NOTHRM patients had a much worse than expected observed mortality (ratio O/E = 1.4). Total occlusion of the infarct-related artery was found less frequently on angiography in THRPM compared to NOTHRM (24.7% vs. 49.2%; p < 0.001).

Conclusion: In the setting of STEMI, transferred patients who received thrombolytic therapy had better clinical outcomes following PCI than those who did not. Transferred patients who did not receive thrombolytics had higher PCI mortality, perhaps due to an increased rate of occluded infarct-related artery prior to PCI. Further studies are needed to evaluate the benefit of combined thrombolytic therapy and transfer PCI in the setting of STEMI.

ORAL CONTRIBUTIONS
883F-2 The Association of Race With Angiographic and Clinical Outcomes Following Fibrinolytic Administration
Pedro Martinez-Arias, Dimiti Kampasialis, Sabrina A. Murphy, Stephen D. Wiviott, Brian Bigelow, Ioanna Kosmidou, Allen Chang, Christopher P. Cannon, Robert P. Giugliano, C. Michael Gibson, Beth Israel Deaconess Medical Center, Boston, MA, TIMI Data Coordinating Center, Boston, MA

Background: The association of race with angiographic and clinical outcomes following fibrinolytic administration is unclear. Objectives and Methods: To assess whether there are racial differences in response to fibrinolytic administration in the treatment of acute myocardial infarction. A total of 17,663 patients (16,966 Caucasians and 1,297 non-Caucasians) from the TIMI 4, 10A, 10B, and 14 and InTIME-2 trials were analyzed. TIMI flow grade (TFG), corrected TIMI frame count (CTFC), TIMI myocardial perfusion grade (TMPG), and electrocardiographic (ECG) data were available in 2,596 patients.

Results: Baseline comborbidities were increased among non-Caucasians including the incidence of hypertension (p < 0.001), diabetes (p < 0.001), active cigarette smoking (p = 0.006) and a longer time to treatment (p < 0.001). Angiographic outcomes did not differ by race when stratified by use of low dose fibrinolysis combined with full dose platelet glycoprotein IIb/IIIa receptor inhibition. Mortality was significantly lower among African-American patients vs. others (2.6% vs. 4.4%, p = 0.012), even when adjusting for age, gender, systolic blood pressure, pulse, history of hypertension, diabetes, or CHF, prior MI, Killip class on admission, smoking, anterior MI location, and time to treatment (O.R. 0.34, 95% CI 0.12-0.92, p = 0.034). Recurrent MI trended lower in African-American patients (3.0% vs. 5.0%, p = 0.15). The composite of death or recurrent MI was significantly lower in African-American patients (5.3% vs. 10.6%, p = 0.005) as was CHF (3.8% vs 10.25%, p = 0.15). However, when region of the patients’ enrollment (North America, Latin American, Eastern Europe, Western Europe) was added to the model, the odds ratio for neither death nor recurrent MI trended lower in African-American patients (3.0% vs. 5.0%, p = 0.005). Results: Supplementation raised the EPA+DHA content of the heart by 73% and of the RBC by 257%. The extent of omega-3 FA incorporation into these tissues was examined using gas chromatography.

Results: Supplementation raised the EPA+DHA content of the heart by 73% and of the RBC by 257% (p < 0.001 for both). The increases differed for these two FA, however. In the heart, the EPA content increased by 216% (from 0.2% to 0.6% of total FA) and in the RBC by 257% (from 0.4% to 1.5%). For DHA, the increases were 54% in the heart (from 1.5% to 2.3%) and 78% in the RBC (from 4.2% to 7.8%). Conclusion: These findings indicate that AHA-recommended intakes of omega-3 FA significantly increased human myocardial EPA+DHA content, and that these changes may be tracked by measurement of EPA+DHA. The myocardial omega-3 FA levels observed here may be used as physiologically-relevant benchmarks for future in vivo and in vitro experiments to explore the cellular mechanisms responsible for the cardioprotective effects of omega-3 FA.