Angiographic Features: Cause of Death vs Survivors

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
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<tr>
<td>TFG 2-3</td>
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<tr>
<td>TMPG 2-3</td>
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<td>3-Vessel</td>
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<td>Thrombus</td>
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</table>

CV Mortality     CHF/Shock    Dysrhythmia

Pathological Features Found Postmortem in 53 Patients With Cardiac Rupture Complicating Acute Myocardial Infarction

Satoshi Yasuda, Yasuhide Asahim, Hiroyuki Okumura, Yoritaka Otsuka, Isao Mori, Atsushi Kawamura, Chikao Yutani, Hiroshi Nonogi, Shunichi Miyazaki, National Cardiovascular Center, Osaka, Japan

Background: Cardiac rupture is responsible for about 15% of all in-hospital deaths among patients with ST elevation myocardial infarction (STEMI). The diagnosis was made based on postmortem histological examination. Forty-two patients (80%) were without previous infarction and 44 patients (84%) were hypertensive.

Results: Cardiac rupture occurred acutely within 48 hours of AMI onset in 20 patients (38%). Also, it occurred 6-8 days after the onset of AMI in 17 patients (32%), in whom immunohistochemical studies revealed accumulation of inflammatory cells and activation of matrix metalloproteinases at the rupture site. AMI-related artery was the left anterior descending artery in 37 patients (70%), the right coronary artery in 13 patients (23%) and the left circumflex artery in 3 patients (5%). In most patients (n=48, 91%), the AMI-related vessel was totally or subtotaly occluded. Since 1999, the era in which the reperfusion therapy has been developed, the total number of rupture patients has been decreasing, but the percentage of those with hemorrhagic infarction has been increasing; 1978-92, n=14 (26%); 1993-97, n=12 (23%); 1998-2002, n=6 (10%).

Conclusions: These findings indicate the potential importance of revascularization of the AMI-related artery to reduce the risk of cardiac rupture. Histologically, sustained inflammatory responses with metalloprotease activation may contribute to modulating the wound-healing process following infarction.

Is the Timing of Coronary Artery Bypass Graft Surgery Following Acute Myocardial Infarction Associated With a Difference in Mortality?

Michael Mack, Marc Katz, Aarom Kugelmass, J. James Zocca, Timothy Wolfgang, Thomas Christopher, Edmund Becker, Steven Culler, April Simon, Emory University, Atlanta, GA, CRSTI, Dallas, TX

Background: This study examines association between operative and predicted mortality rates and the length of time between a preoperative myocardial infarction (MI) and coronary artery bypass graft surgery (CABG) in patients treated in community hospitals.

Methods: The study sample consists of 5,465 consecutive patients who underwent CABG only in one of 18 community hospitals. Logistic regression analysis was utilized to determine if selected time intervals (21 days) between a preoperative MI and CABG were statistically associated with operative mortality after controlling for 30 demographic, procedural and cardiac risk factors.

Results: Approximately 42% of the sample had an MI prior to CABG. Patient’s whose CABG was performed within the first 24 hours had significantly higher mortality rates than those observed for patients whose CABG was delayed by at least 24 hours (see table). Controlling for demographic, procedural and cardiac risk factors, patient’s whose CABG was performed within the first 24 hours were 2.7 times (p=0.024) more likely to die during their hospitalization than patients having surgery between 1 and 7 days after their MI.

Conclusions: Operative mortality is higher if CABG is performed within the first 24 hrs of MI, but there is no difference between any of the other MI groups (1-7 days, 8-21 days, >21 days). Further research needs to assess the clinical imperative for surgery within the first 24 hrs.
Any Measurable Coronary Artery Disease Identified in Women Presenting With Ischemic Chest Pain Is Associated With an Adverse Outcome: Findings From the National Institutes of Health-National Heart, Lung, and Blood Institute-Sponsored Women's Ischemia Syndrome Evaluation (WISE) Study Angiographic Core Laboratory

Barry L. Sharaf, Leslee Shaw, B. Deila Johnson, Sharyl F. Kelsey, Marian B. Olson, Sunil Mankad, William J. Rogers, Steven E. Reis, Carl J. Pepine, C. Noel Bairey Merz, Rhode Island Hospital, Providence, RI

Background: Minimal (Min) or non-obstructive coronary artery disease (CAD) is often identified in women presenting with a suspicion of ischemic chest pain. Whether or not this Min CAD is associated with an adverse outcome has not been well studied.

Methods: Accordingly, angiograms from 887 women undergoing clinically indicated coronary angiography were analyzed by core laboratory for the presence of CAD. No CAD (<20% stenosis), Min CAD (≥20, <50%) and obstructive CAD (≥50% stenosis) was identified in 37, 25, and 38% of women. A severity score (SS) was developed which assigned points for any CAD (≥20% stenosis) weighted by stenosis severity, location and collateral status. A SS of 5 was assigned to those women with no CAD. Most (71%) women with Min CAD had SS between 5.1 and 10. SS ≥5 was assigned to those women with obstructive CAD.

Results: The average age of the women presenting was 58yrs, with 25% diabetic. Twenty percent were non-Caucasian. Death or MI at 3 yrs occurred in 1.9, 3.8 and 8.4% of women with no, Min and obstructive CAD (p<0.0001). Death or MI rates by angiographic severity score (figure) at 3 yrs of follow-up were 2.1, 6, 7.7, 9.3 and 12.4% for those women with SS <5, 5.1-10, 10.1-20, 20.1-50 and >50 (p<0.0001).

Conclusions: CAD associated adverse outcome is identified even in those women without obstructive lesions. Whether adverse outcome in these women with Min CAD is due to endothelial or microvascular dysfunction or rupture of vulnerable, non-obstructive plaque is unknown and deserves further study.

Reduced Functional Capacity in Women Is Associated With Impaired Vascular Function

Eileen Handberg, B. Deila Johnson, Christopher B. Arant, Timothy R. Wessel, Marian B. Olson, Steven E. Reis, Leslee Shaw, Sunil Mankad, William J. Rogers, C. Noel Bairey Merz, George Sopko, Carl J. Pepine, The WISE Investigators, University of Florida, Gainesville, FL, University of Pittsburgh, Pittsburgh, PA

Background: Reduced functional capacity is associated with poor prognosis, but the basis for this link is not well understood in patients without heart failure. The Duke Activity Status Index (DASI) is a validated assessment of functional capacity which has been correlated with outcome. Impaired vascular reactivity has also been associated with poor prognosis. We examined the relationship of vascular reactivity and DASI scores in a cohort of women enrolled in the NHLBI-WISE.

Methods: We examined DASI scores in 203 women with coronary flow reserve (CFR) to adenosine assessments and 381 women with brachial artery flow mediated dilation (FMD) assessments. DASI scores were converted to metabolic equivalents (MET).

Results: The mean age of all women was 57.2 (21-83). 14% were non-white, 40% had a BMI ≥30, and 32% had CAD (≥50% stenosis). Women with a CFR of <2.5 (n=97) had a mean MET level of 4.8 ± 4, compared to 6.5 ± 4.9 in those women (n=106) with CFR ≥ 2.5 (p=0.009). Women with both CFR and FMD (n=83) are shown below, with p-value (0.006) adjusted for age and presence of CAD.

Summary: Women with a CFR <2.5 were significantly more likely to have a functional impairment (a low DASI score), and women with both reduced CFR and FMD had the lowest DASI scores (~3 METS). Impairment in vascular function may result in modification of activity status and help to explain poorer prognosis seen in women with reduced functional capacity who are evaluated for suspected ischemia.

Poster Session 119

Chronic Cardiac Ischemic Syndromes: Gender Considerations, Markers, and Mechanisms

Tuesday, March 09, 2004, 9:00 a.m.-11:00 a.m.
Morial Convention Center, Hall G
Presentation Hour: 9:00 a.m.-10:00 a.m.

Any Measurable Coronary Artery Disease Identified in Women Presenting With Ischemic Chest Pain Is Associated With an Adverse Outcome: Findings From the National Institutes of Health-National Heart, Lung, and Blood Institute-Sponsored Women’s Ischemia Syndrome Evaluation (WISE) Study Angiographic Core Laboratory

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N-Terminal-Pro Brain Type Natriuretic Peptide Predicts Extent of Coronary Artery Disease and Myocardial Ischemia in Patients With Stable Angina Pectoris

Michael W. Weber, Roman Arnold, Torsten Diet, Matthias Rau, Vesselin Mitrovic, Klaus D Mueller, Christian Hamm, Kerckhoff Heart Center, Bad Nauheim, Germany

Background: Recently its has been shown that BNP and NT-proBNP are good predictors for prognosis in acute coronary syndromes (STEMI and NSTEMI) and that NT-proBNP increases after transient myocardial ischemia during coronary angioplasty.

Hypothesis: NT-proBNP is elevated in patients with stable angina pectoris and hemodynamically relevant coronary artery disease (CAD) with exercise induced ischemia.

Methods: 94 patients (71 male, aged 62±8,7) with normal left ventricular function referred for coronary angiography with suspected CAD were included. All patients underwent exercise testing, coronary angiography and myocardial scintigraphy (n=91). Blood for measurement of NT-proBNP was taken before and 15 minutes after maximal exercise. Values are given as mean ± SEM.

Results: 58 patients had a hemodynamically relevant CAD (≥1 vessel with a stenosis >70%) and in 52 patients ischemia was detected by myocardial scintigraphy. NT-proBNP was elevated in patients with CAD (386±72 pm/ml vs. 148±29 pm/ml respectively; p<0.01 Mann Whitney) and in patients with myocardial ischemia (396±80 pm/ml vs. 160±27 pg/ml respectively; p=0.01 Mann Whitney). The increase in NT-proBNP correlated with the number of stenosed vessels (3VD 624±186 pg/ml; 1/2VD 269±5 pg/ml; no CAD 148±29 pg/ml respectively; p=0.01 Mann Whitney) and in patients with myocardial ischemia (396±80 pm/ml vs. 160±27 pg/ml respectively; p=0.01 Mann Whitney). The increase in NT-proBNP correlated with the number of stenosed vessels (3VD 624±186 pg/ml; 1/2VD 269±5 pg/ml; no CAD 148±29 pg/ml respectively; p=0.01 Mann Whitney) and in patients with myocardial ischemia (396±80 pm/ml vs. 160±27 pg/ml respectively; p=0.01 Mann Whitney).

Conclusions: NT-proBNP is elevated in patients with stable angina pectoris with a strong correlation to the extend of coronary artery disease and myocardial ischemia. Combining NT-proBNP with exercise testing the accuracy for predicting CAD can be improved. Therefore NT-proBNP is of attributable value in the diagnostic process of stable angina pectoris.