was significantly smaller in H vs N hearts (14±4% and 45±4%, p=.0000). Conclusion: This study shows that hypothermic therapy initiated late during ischemia and continuing for several hours of rep significantly improves reflow and reduces macroscopic zones of no-reflow and hemorrhage in this model, suggesting protection of the microvasculature by reducing reperfusion injury. As reflow is a predictor of outcome, this intervention may have important clinical implications.

POSTER SESSION

1171 Refining Treatment Strategies Among Patients With Acute Coronary Syndromes

Tuesday, April 01, 2003, Noon-2:00 p.m.
McCormick Place, Hall A
Presentation Hour: Noon-1:00 p.m.

1171-106 Early Short-Term Use of Atorvastatin and Pravastatin in Patients With Non-ST Elevation Acute Coronary Syndrome: Changes of Hemostatic Parameters

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Background. Whether statins rapidly (in 1-2 weeks) and similarly affect hemostatic parameters in patients with non-ST elevation acute coronary syndrome (NSTEACS) is unknown .
Methods: Ninety aspirin and heparin treated patients with NSTEACS were randomized <24 hours from pain onset to open pravastatin 40 mg/day (n=31), atorvastatin 10 mg/day (n=30) or atorvastatin 40 mg/day (n=29). Plasma thrombin-antithrombin complex (TAT), prothrombin fragments 1+2 (F1+2), D-dimer and von Willebrand factor (vWF) were measured by ELISA at baseline, on days 7, 14. Results were compared with data from controls (n=18) of another randomized study on similarly treated patients.
Results: In all treatment groups levels of low-density lipoprotein cholesterol (LDLC) were lowered by days 7 (p<0,01) and 14 (p<0,01 vs. baseline and for both atorvastatin groups vs. day 7). In pravastatin group levels of TAT and F1+2 decreased, while vWF level increased (table). In atorvastatin groups levels of TAT and F 1+2 increased while level of vWF decreased. Contrary to pravastatin group changes in atorvastatin groups more resembled those in controls not receiving lipid lowering drugs. There was slight negative correlation between changes of LDLC and TAT levels. No consistent changes of D-dimer occurred.
Conclusion : Early use of pravastatin and atorvastatin in patients with NSTEACS was associated with divergent changes of some hemostatic parameters.

Changes of hemostatic parameters, m+sd

	Day	Pravastatin	Atorvastatin 10	Atorvastatin 40	Control
TAT, ng/ml	Baseline	3.11+1.06	3.15+1.10	3.15+1.14	3.23+1.29
	Day 7	2.74+0.80#*	3.33+1.02#*	3.41+0.92#**	3.55+1.23*
	Day 14	*	3.55+1.29#**	3.63+1.05#**	3.61+1.15**
		2.53+0.70#*			
		*			
F1+2, nmol/l	Baseline	1.37+0.47	1.33+0.40	1.35+0.48	1.46+0.61
	Day 7	1.31+0.38#	1.54+0.36#**	1.59+0.44#**	1.61+0.58**
	Day 14	1.28+0.29#*	1.52+0.37#**	1.59+0.38#**	1.56+0.52**
vWF, %	Baseline	172+30	179+36	173+44	165+32
	Day 7	181+24#**	170+25#**	156+33#**	168+24
	Day 14	176+23#	157+26#**	146+25#**	173+27

*p<0.05, **p<0.01, vs. baseline; # p<0.05 for pravastatin vs. atorvastatin groups

1171-107 In-Hospital and Discharge Utilization of Medications in Patients With and Without Heart Failure Presenting With Acute Coronary Syndromes: Insights From the PURSUIT Study

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Background: Several medical interventions have been proven in the last two decades to improve the prognosis of patients with coronary artery disease and congestive heart failure. We evaluated the rate of utilization of proven medical therapies in major national and international medical centers participating in the PURSUIT trial.
Methods: We analyzed 9419 patients who were enrolled in the PURSUIT trial between November 1995 and January 1997. We assessed the medication usage at the time of randomization and at discharge for patients presenting with and without symptoms of heart failure on presentation.
Results: 8558 patients presented with Killip class I and 861 patients were diagnosed with Killip Class II or III. The Table shows the medications administered during the first 24 hours of presentation and at discharge.
Conclusion: Despite available data showing the benefit of proven medical therapies for the treatment of patients with acute coronary syndromes and congestive heart failure, except for aspirin, many of these medications continue to be underutilized especially in high-risk patients.

	Medication Use at Randomization			Medication Use at Discharge		
Medication	**Killip I (8558)**	**Killip II/III (861)**	**p value**	**Killip I (8360)**	**Killip II/III (778)**	**p value**
ACE-inhibitor	2230 (26%)	398 (46%)	p < 0.0001	2387 (29%)	372 (48%)	p < 0.0001
Aspirin	7947 (93%)	802 (93%)	p = NS	7254 (87%)	653 (84%)	p = 0.03
Beta-blocker	5879 (69%)	476 (55%)	p < 0.0001	5197 (62%)	405 (52%)	p < 0.0001
Calcium channel blocker	2820 (33%)	250 (29%)	p = 0.02	2755 (33%)	220 (28%)	p = 0.008
Lipid lowering agent	1532 (18%)	132 (15%)	p = 0.06	2031 (24%)	152 (20%)	p = 0.003
Nitrates	7838 (92%)	808 (94%)	p = 0.02	4870 (58%)	502 (65%)	p = 0.0007
Digoxin	456 (5%)	170 (20%)	p < 0.0001	673 (8%)	165 (21%)	p < 0.0001

1171-108 Superior Efficacy of Low Molecular Weight Heparin Versus Unfractionated Heparin in Acute Coronary Syndromes Without ST Elevation

Thibaud Damy, Anissa Bouzamondo, Gilles Montalescot, Philippe Lechat, Pitie Saleptriere Hospital, Paris, France

Background: In acute coronary syndrome without ST elevation (ACS), there is conflicting evidence regarding the efficacy of low molecular weight heparin (LMWH) versus unfractionnated heparin (UFH). We performed a meta-analysis of trials comparing the class of LMWH versus UFH on the combined criteria of Death or Myocardial Infarction (D or MI) in ACS.
Methods: Randomised trials were identified using Medline and Cochrane database. Pooled Relative Risk was calculated with published data. Seven trials including 15998 patients fulfilled the inclusion criteria (Gurfinkel, FRIC, FRISC, FRISC II, ESSENCE, TIMI 11B, FRAXIS).
Results: Meta-analysis of five trials (Gurfinkel, FRIC, ESSENCE, TIMI 11B, FRAXIS), including 12169 patients demonstrated superiority of LMWH versus UFH to reduce D or MI during the acute phase (6-8days) [RR=0.83; 95%CI(0.70-0.99); p=0.042]. Heterogeneity test was non significant (p=0.47) but subgroup analysis according to the type of LMWH, showed that amplitute of benefit was highest with enoxaparin [RR=0.78; (0.62-0.96); p=0.02] compared to dalteparin [RR=1.09; (0.65-1.82)] or nadroparin [RR=0.92; (0.62-1.37)]. Meta-analysis of long term LMWH administration trials (FRIC, FRISC, FRISCII, TIMI11B, FRAXIS) showed that no additional benefit [RR=0.98; (0.82-1.16); p=0.78] was obtained when considering only events occurring after the acute phase. During the acute phase, no significant difference was observed for major bleedings [RR=1.01; (0.81-1.26)]. However minor bleedings were significantly increased by LMWH [RR=1.96; (1.65-2,61); p<0.001]. Prolonged administration significantly increased the major bleeding rate [RR=2.27; (1.63-3.18); p<0.001)]. **Conclusion:** When considering ischemic events during the first week of ACS, there is a significant favorable class effect for LMWH compared to UFH. However, prolonged LMWH treatment increases major bleedings without significant additional benefit on ischemic events.

1171-109 Adherence to Secondary Prevention Therapies Following Acute Coronary Syndromes: One-Year Results From the Canadian Acute Coronary Syndrome Registry

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Background: Clinical trials have clearly established the role of effective pharmacotherapies in the secondary prevention of acute coronary syndrome (ACS). However, there are limited data regarding the longer-term adherence to these therapies after discharge.
Methods: The ACS Registry is a prospective Canadian observational study of 5312 patients with suspected ACS from 51 centres in 9 provinces. A final diagnosis of ACS was determined in 4627 patients (27% Q wave myocardial infarction, 31% non-Q myocardial infarction, 41% unstable angina). Discharge medication use was recorded by treating physicians. Follow-up medication use (determined by standardized telephone interview) was available for 3844 one-year survivors (8.8% unavailable). We compared the rates of medication use at discharge and at 1 year.
Results: Medication use in 3844 patients at discharge and at 1-year follow-up were as follows:

Medication	At discharge	At 1-year follow-up	p value
ASA	93%	83%	<0.001
Beta-blockers	77%	66%	<0.001
ACE inhibitors	56%	55%	NS
ARBs	3.3%	7.5%	<0.001
Lipid lowering agents	57%	68%	<0.001

The rates and trends for medication use were similar irrespective of the index discharge ACS diagnosis.

Conclusions: While the use of acetylsalicylic acid (ASA) and beta-blockers was high at discharge, it declined significantly at 1-year follow-up. In contrast, the use of angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), and lipid lowering agents was sustained or increased. While the reasons for medication discontinuation are unknown, there appears to be a significant opportunity to improve on the adherence to evidence-based therapies.

1171-110 Lesion Characteristics Affect Thrombolysis in Myocardial Infarction Flow in Acute Myocardial Infarction: An Intravascular Ultrasound Study

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TIMI flow is a predictor of prognosis after acute myocardial infarction (AMI). Lesion morphology that determines TIMI flow has not been studied in detail, especially using intravascular ultrasound (IVUS). We therefore analyzed pre-intervention IVUS and angiography in 97 AMI pts who presented <72hrs from symptom onset. Forty-four pts (45.4%) received intravenous thrombolysis before IVUS. Because AMI lesions typically include thrombi, qualitative IVUS assessment focused on thrombus-related morphologies: channels into the plaque, bright-speckled elements, hypoechoic masses, and absence of an evacuated plaque cavity. Measurements included lesion and reference artery, lumen and plaque (artery-lumen) areas. Remodeling index was calculated as lesion/mean reference arterial area. **Results:** There were no significant differences in pt and vessel characteristics or history of thrombolysis among the 3 TIMI flow grade groups. IVUS results are shown in the table. **Conclusion:** TIMI flow in pts following AMI is related to plaque characteristics as determined by IVUS. In particular, evidence of thrombus (strongest in TIMI 0/I and weakest in TIMI III), lesion length and positive remodeling, but not residual lumen, affect TIMI flow.

	TIMI-0/I	TIMI-II	TIMI-III	P
Lesion length (mm)	22±9	16±7	16±10	0.02
Lesion plaque area (mm^2)	13.6±5.5	13.9±6.0	13.4±6.0	0.98
Lesion plaque burden (%)	85.8±8.3	85.5±6.8	82.9±13.0	0.84
Lesionlumen area (mm^2)	1.9±0.9	2.2±1.1	2.5±2.4	0.74
Remodeling index	1.5±0.2	1.1±0.2	1.1±0.2	0.01
Channels within plaque (%)	27.3	3.4	4.0	0.03
Brightly speck;ed plaque (%)	72.7	17.2	23.5	0.0004
Evacuated plaque cavity (%)	0	3.4	22.2	0.03

1171-111 Is Female Gender Associated With Impaired Outcome After Successful Thrombolysis? Insights From the APRICOT Trial

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Background: Female gender is often believed to portend worse outcome after ST-elevation myocardial infarction (MI). Whether this is independently related to gender, or primarily due to clinical and angiographic differences at baseline is a matter of debate.

Methods: Patients (n=452) had fibrinolysis for acute ST elevation MI and an open infarct artery at coronary angiography performed within 48 hours. Patients had 3-month follow-up angiography and 1-year clinical follow-up.

Results: Of the 452 patients 75 (17%) were female. Women were older (59±11 vs. 56±9 years, $p < 0.01$), more often had a history of hypertension (39% vs. 22%, $p < 0.01$) and were more often smokers than men (73% vs. 63%, p=0.08). Single vessel disease was more frequent among women: 69% vs. 54% (p=0.01). Baseline stenosis severity (QCA) was less severe: 54±14 vs. 58±13 (p=0.04). Table 1 shows clinical and angiographic outcome. Adjustment for baseline imbalances did not reveal an independent relationship with gender.

Conclusions: Despite a less favorable clinical baseline risk-profile, 1-year clinical outcome after successful fibrinolysis did not differ between men and women. A higher-risk angiographic baseline profile was not apparent, and 3-month reocclusion was similar to men. These findings challenge the often generalized association between gender and outcome, and warrant further exploration as to whether other mechanisms drive this relationship.

Table 1

	Women	Men	OR (95% CI)
Reocclusion	20%	19%	1.10 (0.56-2.12)
1-year death/reinfarction	11%	11%	0.98 (0.40-2.29)

1171-112 Incremental Cost-Effectiveness of Early and Long-Term Clopidogrel in Patients Undergoing Percutaneous Coronary Infarction in the CURE Trial: The PCI-CURE Economic Analysis

Shamir R. Mehta, William S. Weintraub, Bengt Jonsson, Andre Lamy, Elizabeth Mahoney, Peter Lindgren, Marcus Flather, Michel E. Bertrand, Feng Zhao, Susan Chrolavicius, Keith A. Fox, Salim Yusuf, McMaster University, Hamilton, ON, Canada

Background: The Clopidogrel in Unstable Angina to Prevent Recurrent Events (CURE) trial Economic Analysis demonstrated the incremental cost-effectiveness of clopidogrel therapy in patients with non-ST segment elevation acute coronary syndrome (ACS). The purpose of the current analysis is to assess the cost-effectiveness of clopidogrel in the large subgroup (N=2658) of patients undergoing PCI in the CURE trial (PCI-CURE study).

Methods: Cost effectiveness was assessed in 5 countries, including the United States, United Kingdom, France, Sweden and Canada based upon the results of the PCI-CURE study. We calculated the costs of hospitalization, medication and study drug based on resource utilization for all patients undergoing PCI in the CURE study. Unit costs were derived from both Medstat and Medicare, representing both insurance and governmental payment systems in the United States. Cost effectiveness was expressed as the cost per event avoided.

Results: Data to date are available for Sweden and France. Patients in the clopidogrel arm have on average higher costs than patients treated with ASA alone, 9,947 Euros compared to 9,817 Euros in Sweden and 8,465 Euros compared to 8,213 Euros; in France. The net cost is 130 and 252 Euros; in the two countries. The additional cost is due to the cost of clopidogrel, which is partly offset by savings during the initial hospitalization. The cost offset was 335 and 152 Euros in Sweden and France, respectively. Other costs were similar in both groups. Treatment with clopidogrel led to 0.038 avoided events (0.126 events in the ASA arm compared to 0.088 in the clopidogrel + ASA arm). This lead to a cost-effectiveness ratio of 3,421 Euros/event avoided in Sweden and 6,632 Euros/event avoided in France.

Conclusions: Clopidogrel therapy started acutely and continued for up to one year is highly cost-effective in patients with ACS undergoing PCI. A full cost-effectiveness analysis pertaining to all 5 countries will be presented in detail.

1171-113 The Significance of Early ST-Segment Resolution After Treatment With Aspirin in Patients Assigned to Primary Angioplasty

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Background: Post thrombolysis, early resolution of ST-segment elevation (ST↑R) predicts restoration of TIMI III in the infarct related artery (IRA) with a positive predictive value (PPV) of 70-80%. Post successful primary angioplasty (PCI) ST↑R is a surrogate of tissue level reperfusion. ST↑R after treatment with aspirin in patients with ST↑ myocardial infarction (STEMI) has not been investigated, although if reliable may effect immediate clinical management.

Methods: The study comprised 172 consecutive patients assigned to primary PCI for STEMI. Patients were treated with chewable aspirin and heparin and the sum of ST↑ (∑ST↑) was assessed on admission and after10-15 minutes of each aspirin dose. The patients were urgently catheterized regardless of the changes in ∑ST↑. TIMI flow in the IRA was determined on the initial and final angiogram. ADP- and epinephrine- induced platelet aggregation was determined before catheterization. Patients were followed throughout hospitalization.

Results: Early ∑ST↑R ≥70% was associated with a higher prevalence of patent IRA (TIMI II-III) on initial angiography (94% vs 24%, p<0.01) and of TIMI III flow (36% vs 6% p<0.01). ∑ST↑ resolution ≥50% was similarly associated with a higher rate of IRA patency and TIMI III flow (p<0.01 for both), but with a lower PPV for patency (85% vs 94%) and for TIMI III flow (32% vs 36%). Patients with (36 [21%]) and without (136 [79%]) early ∑ST↑R ≥ 70% did not differ with respect to aspirin dose (333±89 vs 313±71mg, p=0.13) and use of heparin (85% vs 78%, p=0.8) prior to catheterization, age, gender and risk factor distribution, but had lower epinephrine-induced platelet aggregation (40.4±12% vs 59.5±11%, p=0.015). Despite similar prevalence of TIMI III flow at the completion of the PCI (85% vs 83%, p=0.9) patients with ST↑R had a lower incidence of death or CHF (7.8% vs 25.4%, p=0.05), QMI (42% vs 73%, p<0.01), lower peak CK (750±1071 vs 2389±1854, p<0.01), and better LVEF (47±12 vs 42±11, p=0.04). Conclusions: In patients with STEMI undergoing primary PCI, ∑ST↑R ≥70% after aspirin treatment is a reliable sign of IRA patency, but not of TIMI III flow, and predicts smaller myocardial damage and better in-hospital outcome.