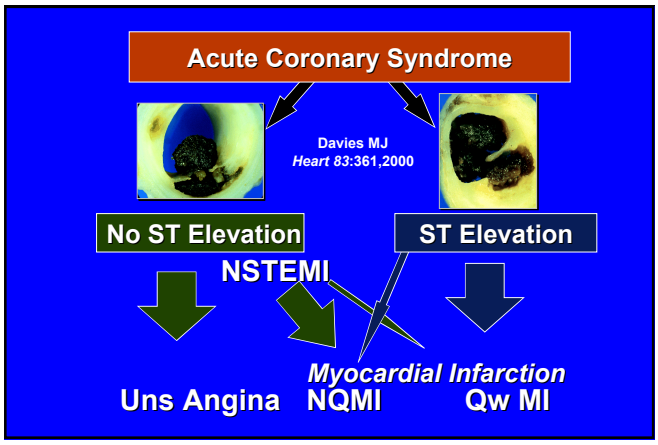
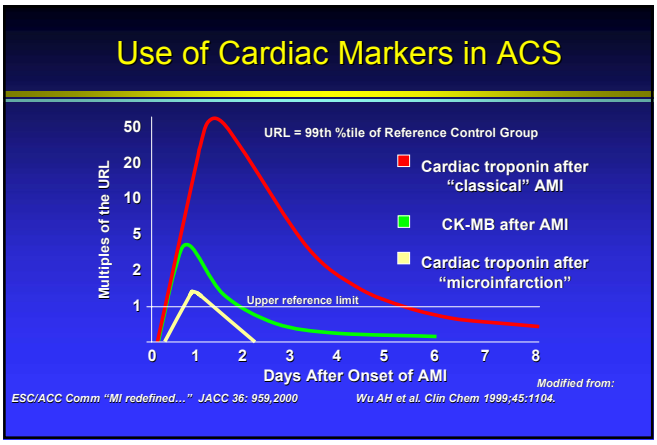
ACUTE CORONARY SYNDROMES WITHOUT ST ELEVATION– OVERVIEW

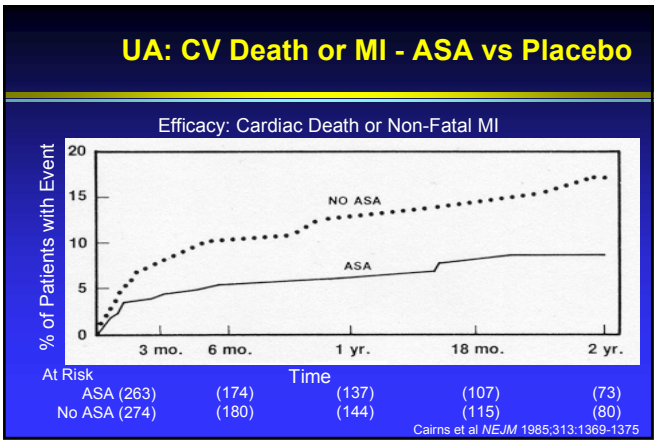
Prof. David Hasdai

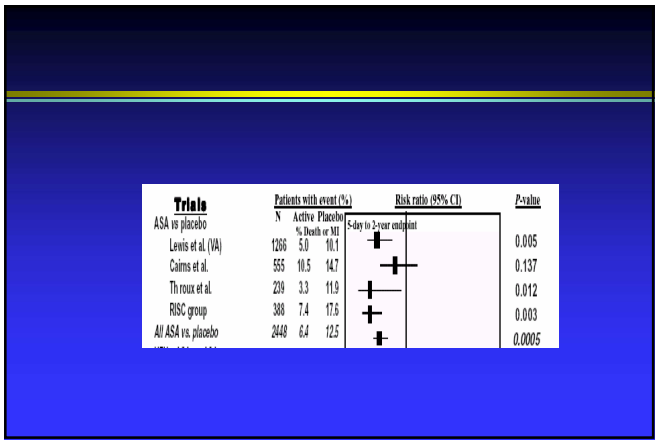
Keywords

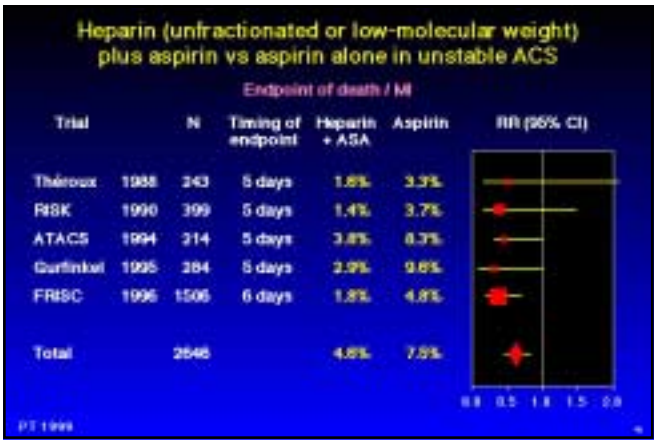
- Troponin
- Unstable Angina
- Non-Q MI
- Aspirin
- Clopidogrel
- Enoxaparin
- Thrombin Inhibitors
- IIb/IIIa Inhibitors
- Statins

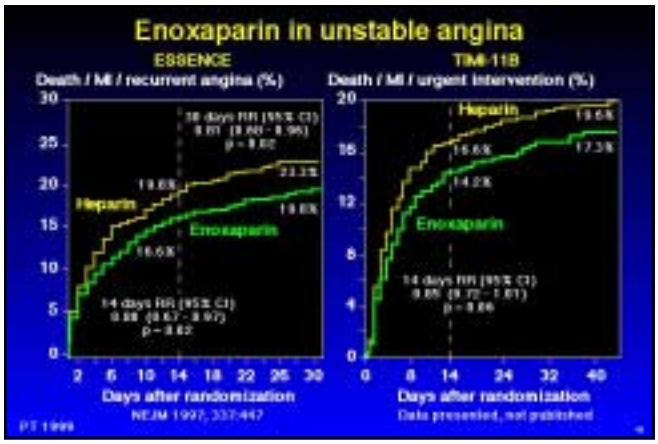


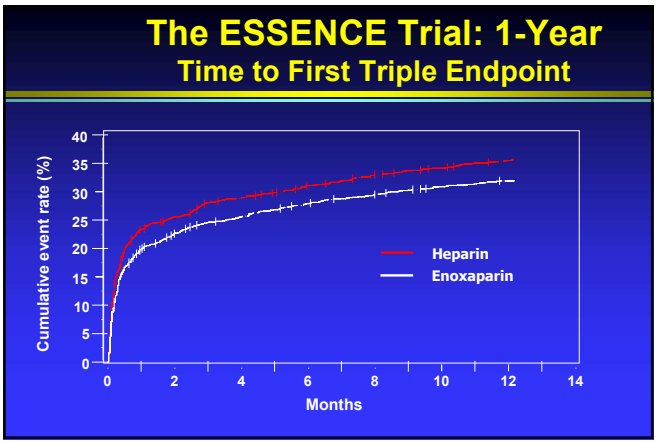


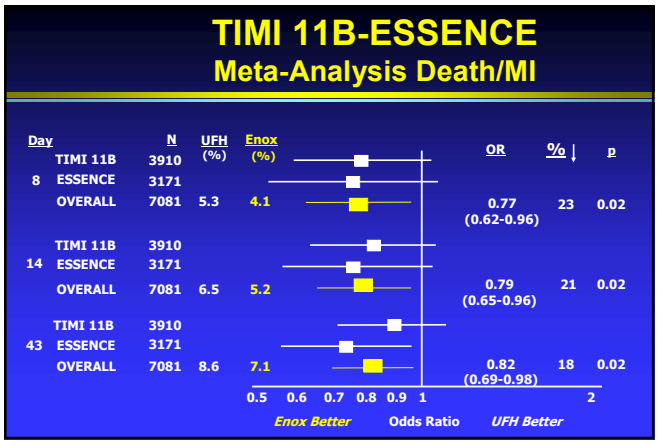


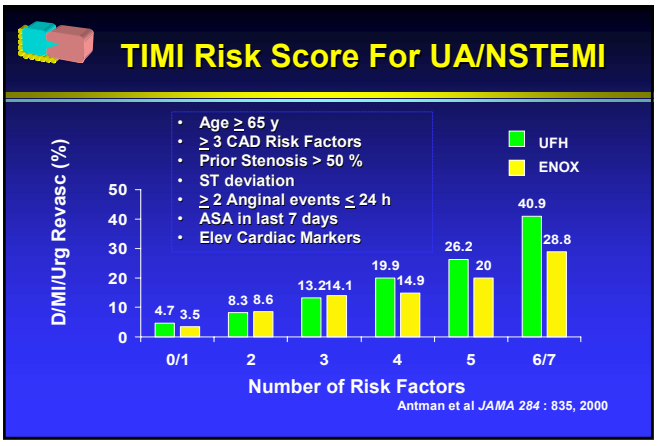

Trials
ASA vs placebo
Lewis et al. (VA)
Cairns et al.
Th roux et al.
RISC group
All ASA vs. placebo
Patients with event (%)
N
Active
Placebo
% Death or MI
Risk ratio (95% CI)
5-day to 2-year endpoint
P-value
1206 5.0 10.1 0.005
555 10.5 14.7 0.137
226 3.3 11.9 0.012
388 7.4 17.6 0.003
2448 6.4 12.5 0.0005

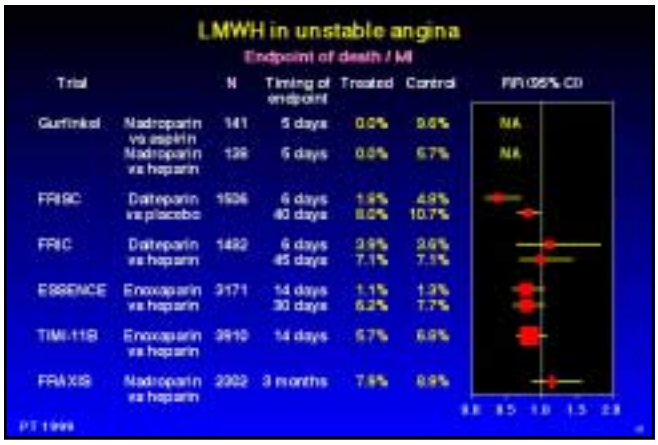

Heparin (unfractionated or low-molecular weight) plus aspirin vs aspirin alone in unstable ACS
Endpoint of death / MI
Trial
N
Timing of endpoint
Heparin + ASA
Aspirin
RR (95% CI)
Théroux 1988 243 5 days 1.6% 3.3%
RISK 1990 399 5 days 1.4% 3.7%
ATACS 1994 314 5 days 3.8% 8.3%
Gurfinkel 1995 384 5 days 2.9% 9.6%
FRISC 1996 1506 6 days 1.8% 4.8%
Total 2846 4.6% 7.5%


Enoxaparin in unstable angina
ESSENCE
Death / MI / recurrent angina (%)
Heparin
Enoxaparin
Days after randomization
NEJM 1997; 337:447
TIMI 11B
Death / MI / urgent intervention (%)
Heparin
Enoxaparin
Days after randomization
Data presented, not published


The ESSENCE Trial: 1-Year
Time to First Triple Endpoint
Cumulative event rate (%)
Heparin
Enoxaparin
Months


TIMI 11B-ESSENCE
Meta-Analysis Death/MI
Day
N
UFH (%)
Enox (%)
OR
% ↓
p
TIMI 11B 3910
8 ESSENCE 3171
OVERALL 7081 5.3 4.1 0.77 (0.62-0.96) 23 0.02
TIMI 11B 3910
14 ESSENCE 3171
OVERALL 7081 6.5 5.2 0.79 (0.65-0.96) 21 0.02
TIMI 11B 3910
43 ESSENCE 3171
OVERALL 7081 8.6 7.1 0.82 (0.69-0.98) 18 0.02
Enox Better
Odds Ratio
UFH Better


TIMI Risk Score For UA/NSTEMI
Age ≥ 65 y
≥ 3 CAD Risk Factors
Prior Stenosis > 50 %
ST deviation
≥ 2 Anginal events ≤ 24 h
ASA in last 7 days
Elev Cardiac Markers
UFH
ENOX
D/MI/Urg Revasc (%)
4.7 3.5
8.3 8.6
13.2 14.1
19.9 14.9
26.2 20
40.9 28.8
0/1
2
3
4
5
6/7
Number of Risk Factors
Antman et al JAMA 284 : 835, 2000



SYNERGY: Major clinical end points at 30 days

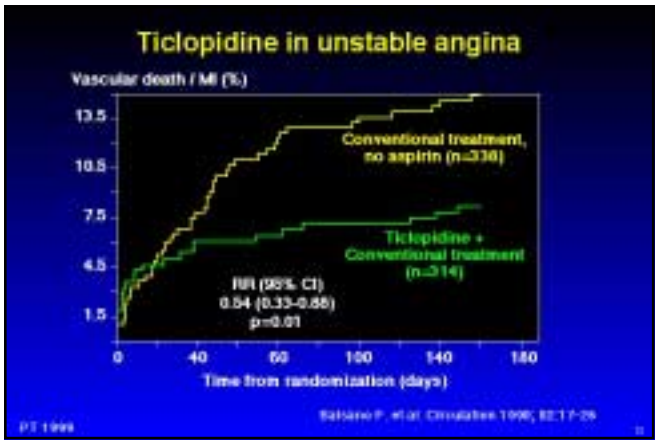
End point	Enoxaparin	Unfractionated heparin	Significant
Death/MI (primary end point) (%)	14	14.5	No
Death (%)	3.2	3.1	No
MI (%)	11.7	12.7	No
Stroke	1.0	0.9	No
Hemorrhagic stroke (%)	<0.1	<0.1	No

SYNERGY: PCI results

Outcome	Enoxaparin	Unfractionated heparin
Abrupt closures (%)	1.3	1.7
Any unsuccessful PCI (%)	3.6	3.4
Emergency CABG (%)	0.3	0.3

Meta-analysis of all enoxaparin vs heparin ACS trials: 8000 patients with no prior antithrombotic therapy before randomization

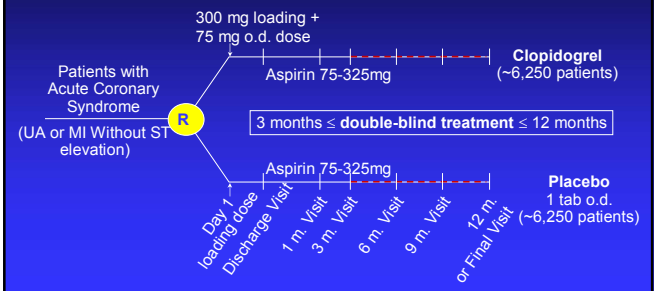
End point	Enoxaparin	Unfractionated heparin	Significant
Death/MI at 30 days (%)	8.1	9.5	Yes
Transfusion	5.6	5.5	No
TIMI major bleeds (%)	3.5	2.7	Yes



CURE (OASIS-4)

Clopidogrel in Unstable Angina to prevent Recurrent ischemic Events

Patient Schedule



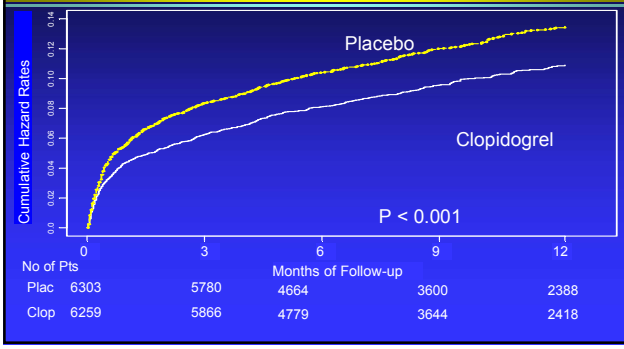
Medications After Randomization in Hospital

	Placebo %	Clopidogrel %
IV Heparin	46.9	46.0
LMW Heparin	56.0	56.1
Beta-blocker	78.4	78.7
Any CCB	36.0	36.0
ACE-I	49.9	50.9
Lipid-lowering	47.0	46.3

Outcomes 1 /2

	Plac %	Clop %	RR	CI	p
# Patients	6303	6259			
1st Co-Primary	11.41	9.30	0.80	0.72-0.90	< 0.001
•CV Death	5.47	5.08	0.93	0.79-1.08	
•MI	6.65	5.18	0.77	0.67-0.89	
•Stroke	1.38	1.20	0.86	0.63-1.18	
Non CV death	0.71	0.66	0.91	0.60-1.39	

Cumulative Hazard Rates for CV Death/MI/Stroke



Outcomes 2/2

	Plac %	Clop %	RR	CI	p
# Patients	6303	6259			
2nd Co-Primary	18.83	16.54	0.86	0.79-0.94	< 0.001
Refract.Ischemia	9.31	8.69	0.93	0.82-1.04	
In hospital	2.00	1.36	0.68	0.52-0.90	
After Discharge	7.59	7.57	0.99	0.87-1.13	
Severe Ischemia	5.03	3.80	0.75	0.63-0.89	< 0.001

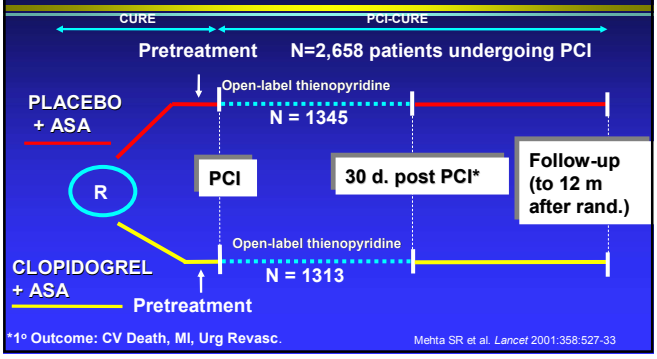
Bleeding Complications

	Placebo	Clopidogrel	RR	95% CI	p
# Patients	6303	6259			
Major	2.7%	3.7%	1.38	1.13-1.67	0.001
•Life Threatening	1.8%	2.2%	1.21	0.95-1.56	0.13
•Other Major	0.9%	1.5%	1.70	1.22-2.35	< 0.002
Minor	2.4%	5.1%	2.12	1.75-2.56	< 0.001
Transfusion (2+Units)	2.2%	2.8%	1.30	1.04-1.62	0.02

PCI-CURE

A prospective, randomized, double-blind substudy of patients undergoing PCI in the CURE trial

PCI-CURE: Study Design



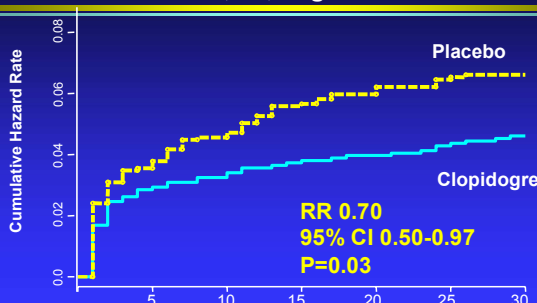
*1° Outcome: CV Death, MI, Urg Revasc.

Mehta SR et al. *Lancet* 2001:358:527-33

Procedural Characteristics

	Placebo N=1345	Clopidogrel N=1313
Median Day of PCI	10	10
During initial Hosp	6	6
After initial Hosp	49	49
Stent	81.3%	82.4%
Open label thienopyridine		
Before PCI	24.7%	26.4%
Overall	84.1%	82.9%

Primary Endpoint: CV Death, MI, Urgent Revascularization



Mehta SR et al. *Lancet* 2001:358:527-33

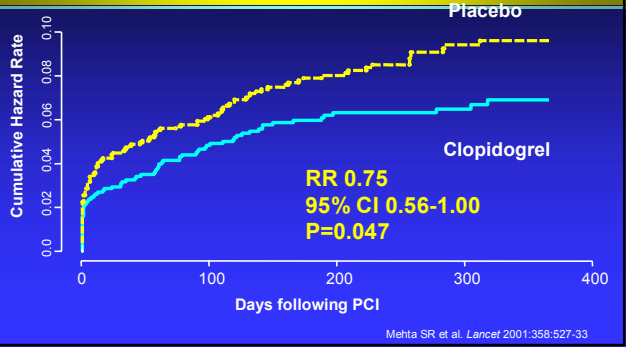
Major Outcomes: From PCI to 30 days

Events	Placebo N=1345	Clopid. N=1313	RR	95% CI	P
CV death, MI, urg. revasc.*	6.4%	4.5%	0.70	0.50-0.97	0.03
CV death, MI	4.4%	2.9%	0.66	0.44-0.99	0.04
CV death	1.0%	1.1%	1.10	0.52-2.35	
MI	3.8%	2.1%	0.56	0.35-0.89	
Q wave MI	2.4%	0.8%	0.35	0.18-0.70	
Urg Rev.	2.8%	1.9%	0.67	0.41-1.11	

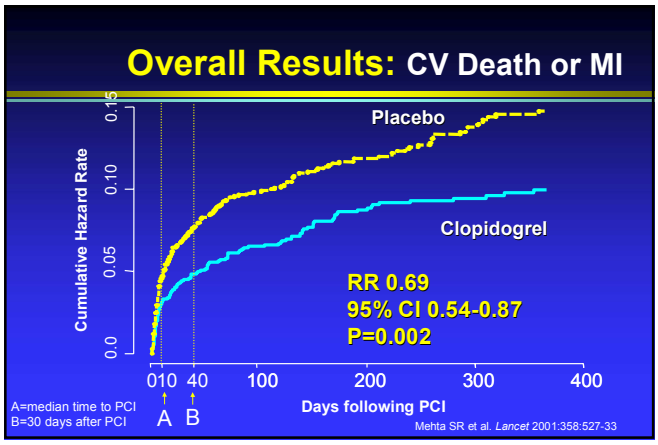
*Primary outcome

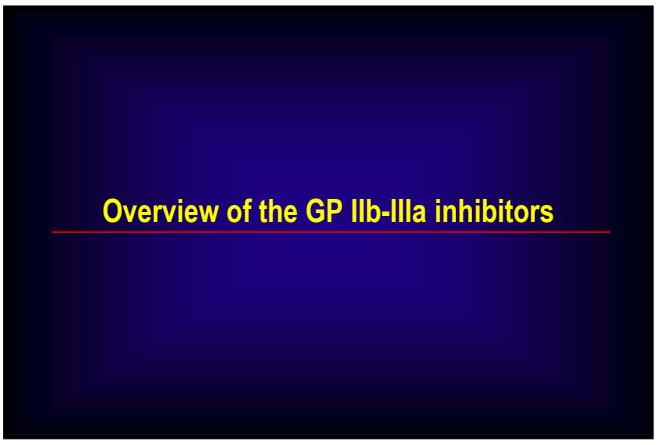
Mehta SR et al. *Lancet* 2001:358:527-33

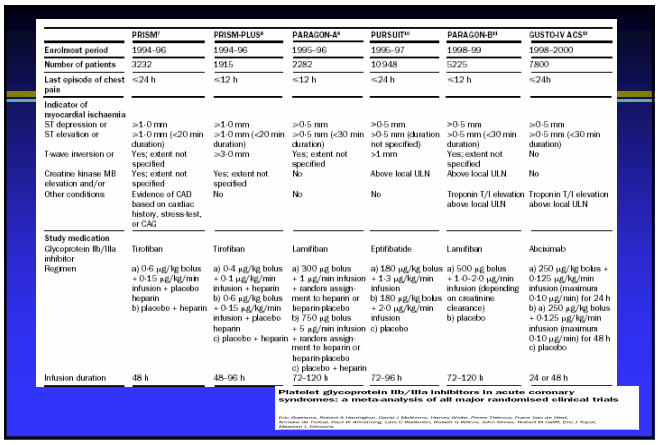
CV Death, MI: From PCI to End of Followup



Mehta SR et al. *Lancet* 2001:358:527-33

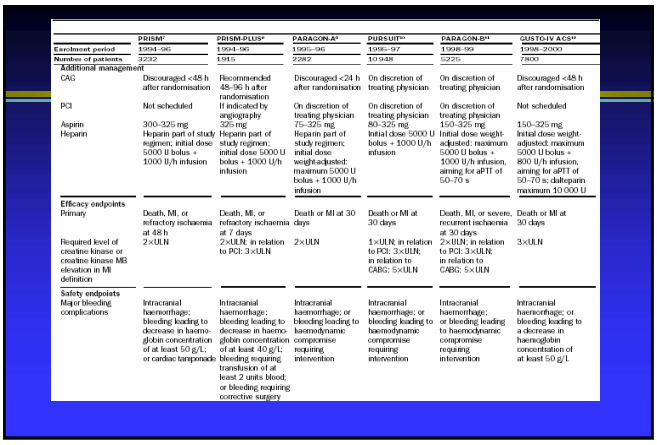






	PRISM†	PRISM-PLUS‡	PARAGON-A§	PURSUIT¶	PARAGON-B‖	GUSTO-IV ACS**
Enrolment period	1994–96	1994–96	1995–96	1995–97	1998–99	1998–2000
Number of patients	3232	1915	2282	10 948	5225	7800
Last episode of chest pain	≤24 h	≤12 h	≤12 h	≤24 h	≤12 h	≤24h
Indicator of myocardial ischaemia						
ST depression or ST elevation or	≥1·0 mm (<20 min duration)	≥1·0 mm (<20 min duration)	≥0·5 mm (<30 min duration)	≥0·5 mm (duration not specified)	≥0·5 mm (<30 min duration)	≥0·5 mm (<30 min duration)
T-wave inversion or	Yes; extent not specified	≥3·0 mm	Yes; extent not specified	>1 mm	Yes; extent not specified	No
Creatine kinase MB elevation and/or	Yes; extent not specified	Yes; extent not specified	No	Above local ULN	Above local ULN	No
Other conditions	Evidence of CAD based on cardiac history, stress-test, or CAG	No	No	No	Troponin T/I elevation above local ULN	Troponin T/I elevation above local ULN
Study medication						
Glycoprotein IIb/IIIa inhibitor	Tirofiban	Tirofiban	Lamifiban	Eptifibatide	Lamifiban	Abciximab
Regimen	a) 0·6 μg/kg bolus + 0·15 μg/kg/min infusion + placebo heparin b) placebo + heparin	a) 0·4 μg/kg bolus + 0·1 μg/kg/min infusion + heparin b) 0·6 μg/kg bolus + 0·15 μg/kg/min infusion + placebo heparin c) placebo + heparin	a) 300 μg bolus + 1 μg/min infusion + random assignment to heparin or heparin-placebo b) 750 μg bolus + 5 μg/min infusion + random assignment to heparin or heparin-placebo c) placebo + heparin	a) 180 μg/kg bolus + 1·3 μg/kg/min infusion b) 180 μg/kg bolus + 2·0 μg/kg/min infusion c) placebo	a) 500 μg bolus + 1·0–2·0 μg/min infusion (depending on creatinine clearance) b) placebo	a) 250 μg/kg bolus + 0·125 μg/kg/min infusion (maximum 0·10 μg/min) for 24 h b) a) 250 μg/kg bolus + 0·125 μg/kg/min infusion (maximum 0·10 μg/min) for 48 h c) placebo
Infusion duration	48 h	48–96 h	72–120 h	72–96 h	72–120 h	24 or 48 h

Platelet glycoprotein IIb/IIIa inhibitors in acute coronary syndromes: a meta-analysis of all major randomised clinical trials



	PRISM†	PRISM-PLUS‡	PARAGON-A§	PURSUIT¶	PARAGON-B‖	GUSTO-IV ACS**
Enrolment period	1994–96	1994–96	1995–96	1995–97	1998–99	1998–2000
Number of patients	3232	1915	2282	10 948	5225	7800
Additional management						
CAG	Discouraged <48 h after randomisation	Recommended 48–96 h after randomisation If indicated by angiography	Discouraged <24 h after randomisation	On discretion of treating physician	On discretion of treating physician	Discouraged <48 h after randomisation
PCI	Not scheduled	On discretion of treating physician	On discretion of treating physician	On discretion of treating physician	On discretion of treating physician	Not scheduled
Aspirin	300–325 mg	325 mg	75–325 mg	80–325 mg	150–325 mg	150–325 mg
Heparin	Heparin part of study regimen; initial dose 5000 U bolus + 1000 U/h infusion	Heparin part of study regimen; initial dose 5000 U bolus + 1000 U/h infusion	Heparin part of study regimen; initial dose weight-adjusted: maximum 5000 U bolus + 1000 U/h infusion	Initial dose 5000 U bolus + 1000 U/h infusion	Initial dose weight-adjusted: maximum 5000 U bolus + 1000 U/h infusion, aiming for aPTT of 50–70 s	Initial dose weight-adjusted: maximum 5000 U bolus + 800 U/h infusion, aiming for aPTT of 50–70 s; dalteparin maximum 10 000 U
Efficacy endpoints						
Primary	Death, MI, or refractory ischaemia at 48 h	Death, MI, or refractory ischaemia at 7 days	Death or MI at 30 days	Death or MI at 30 days	Death, MI, or severe, recurrent ischaemia at 30 days	Death or MI at 30 days
Required level of creatine kinase or creatine kinase MB elevation in MI definition	2×ULN	2×ULN; in relation to PCI: 3×ULN	2×ULN	1×ULN; in relation to PCI: 3×ULN; in relation to CABG: 5×ULN	2×ULN; in relation to PCI: 3×ULN; in relation to CABG: 5×ULN	3×ULN
Safety endpoints						
Major bleeding complications	Intracranial haemorrhage; bleeding leading to decrease in haemoglobin concentration of at least 50 g/L; or cardiac tamponade	Intracranial haemorrhage; bleeding leading to decrease in haemoglobin concentration of at least 40 g/L; bleeding requiring transfusion of at least 2 units blood; or bleeding requiring corrective surgery	Intracranial haemorrhage; or bleeding leading to haemodynamic compromise requiring intervention	Intracranial haemorrhage; or bleeding leading to haemodynamic compromise requiring intervention	Intracranial haemorrhage; or bleeding leading to haemodynamic compromise requiring intervention	Intracranial haemorrhage; or bleeding leading to a decrease in haemoglobin concentration of at least 50 g/L

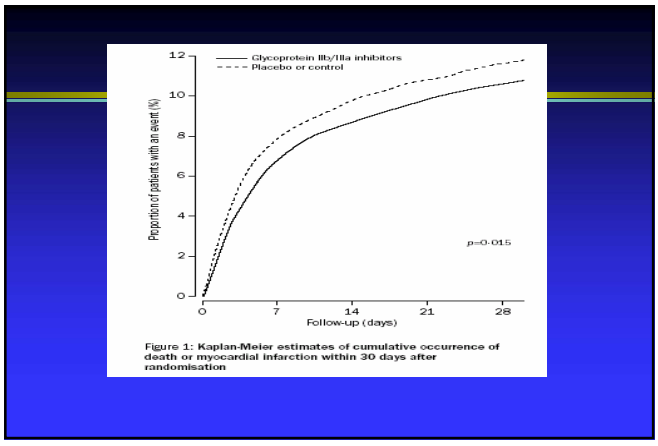
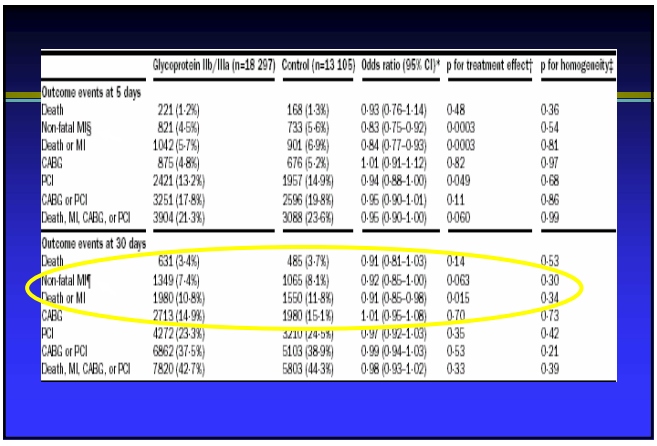


Figure 1: Kaplan-Meier estimates of cumulative occurrence of death or myocardial infarction within 30 days after randomisation



	Glycoprotein IIb/IIIa (n=18 297)	Control (n=13 105)	Odds ratio (95% CI)*	p for treatment effect†	p for homogeneity‡
Outcome events at 5 days					
Death	221 (1·2%)	168 (1·3%)	0·93 (0·76–1·14)	0·48	0·36
Non-fatal MI§	821 (4·5%)	733 (5·6%)	0·83 (0·75–0·92)	0·0003	0·54
Death or MI	1042 (5·7%)	901 (6·9%)	0·84 (0·77–0·93)	0·0003	0·81
CABG	875 (4·8%)	676 (5·2%)	1·01 (0·91–1·12)	0·82	0·97
PCI	2421 (13·2%)	1957 (14·9%)	0·94 (0·88–1·00)	0·049	0·68
CABG or PCI	3251 (17·8%)	2596 (19·8%)	0·95 (0·90–1·01)	0·11	0·86
Death, MI, CABG, or PCI	3904 (21·3%)	3088 (23·6%)	0·95 (0·90–1·00)	0·060	0·99
Outcome events at 30 days					
Death	631 (3·4%)	486 (3·7%)	0·91 (0·81–1·03)	0·14	0·53
Non-fatal MI¶	1349 (7·4%)	1065 (8·1%)	0·92 (0·85–1·00)	0·063	0·30
Death or MI	1980 (10·8%)	1550 (11·8%)	0·91 (0·85–0·98)	0·015	0·34
CABG	2713 (14·9%)	1980 (15·1%)	1·01 (0·95–1·08)	0·70	0·73
PCI	4272 (23·3%)	3210 (24·5%)	0·97 (0·92–1·03)	0·35	0·42
CABG or PCI	6862 (37·5%)	5103 (38·9%)	0·99 (0·94–1·03)	0·53	0·21
Death, MI, CABG, or PCI	7820 (42·7%)	5803 (44·3%)	0·98 (0·93–1·02)	0·33	0·39

			Number of patients	Major bleed		Intracranial haemorrhage	Stroke	
				Number of patients	Odds ratio (95% CI)		Number of patients	Odds ratio (95% CI)
All	Any glycoprotein IIb/IIIa	Yes/no	18297	445 (2·4%)	1·62 (1·36–1·94)§	16 (0·09%)	137 (0·75%)	1·11 (0·84–1·45)*
	Placebo	Yes	13105	180 (1·4%)	1·00	8 (0·06%)	91 (0·69%)	1·00
Glycoprotein IIb/IIIa additional to heparin†	Any glycoprotein IIb/IIIa	Yes	15562	395 (2·5%)	1·64 (1·36–1·97)§	13 (0·08%)	113 (0·73%)	1·11 (0·83–1·49)*
	Placebo	Yes	11489	160 (1·4%)	1·00	6 (0·05%)	77 (0·67%)	1·00
Glycoprotein IIb/IIIa as against heparin‡	Any glycoprotein IIb/IIIa	No	2735	50 (1·8%)	1·61 (1·06–2·46)§	3 (0·11%)	24 (0·88%)	1·27 (0·71–2·29)*
	Placebo	Yes	3171	41 (1·3%)	1·00	2 (0·06%)	22 (0·69%)	1·00
Small-molecule glycoprotein IIb/IIIa trials§	Any glycoprotein IIb/IIIa	Yes/no	13095	215 (1·6%)	1·64 (1·30–2·07)	9 (0·07%)	105 (0·80%)	1·14 (0·84–1·53)
	Placeco	Yes	10507	107 (1·0%)	1·00	7 (0·07%)	75 (0·71%)	1·00

An integrated clinical approach to predicting the benefit of tirofiban in non-ST elevation acute coronary syndromes

Application of the TIMI Risk Score for UA/NSTEMI in PRISM-PLUS

D. A. Morrow[1], E. M. Antman[1], S. M. Snapinn[2], C. H. McCabe[1], P. Theroux[3] and E. Braunwald[1]

[1]Department of Medicine, Brigham and Women's Hospital, Boston, MA, U.S.A.; [2]Merck & Co., Whitehouse Station, NJ, U.S.A.; [3]Montreal Heart Institute, Montreal, Canada

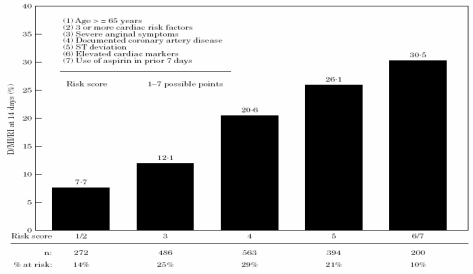


Figure 1 Risk of death, new myocardial infarction or refractory ischaemia (D/MI/RI) through 14 days in PRISM-PLUS (n=1915) stratified by the TIMI Risk Score.

TIMI Risk Score To Predict Who Benefits From IIb/IIIa Rx

Verified *Retrospectively* in PRISM Plus Cohort

Pain <12 hrs
≥1 mm ST↓
≥3 mm T↓
Routine angio

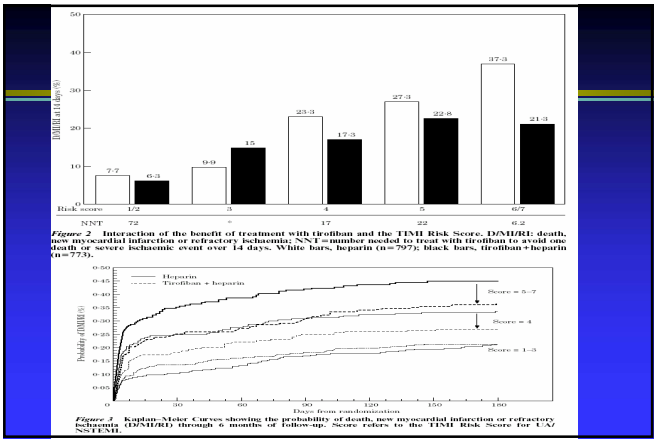


Figure 2 Interaction of the benefit of treatment with tirofiban and the TIMI Risk Score. D/MI/RI: death, new myocardial infarction or refractory ischaemia; NNT=number needed to treat with tirofiban to avoid one death or severe ischaemic event over 14 days. White bars, heparin (n=797); black bars, tirofiban+heparin (n=773).

Figure 3 Kaplan-Meier Curves showing the probability of death, new myocardial infarction or refractory ischaemia (D/MI/RI) through 6 months of follow-up. Score refers to the TIMI Risk Score for UA/NSTEMI.

IIb/IIIa Inhibitors- Indications

Class I

A platelet GP IIb/IIIa antagonist should be administered, in addition to ASA and heparin, to patients in whom catheterization and PCI are planned. The GP IIb/IIIa antagonist may also be administered just prior to PCI. (Level of Evidence: A)

Class IIa

Eptifibatide or tirofiban should be administered, in addition to ASA and LMWH or UFH, to patients *with* continuing ischemia, an elevated troponin or with other high-risk features in whom an invasive management strategy is *not* planned. (Level of Evidence: A)

A platelet GP IIb/IIIa antagonist should be administered to patients already receiving heparin, ASA, *and clopidogrel* in whom catheterization and PCI are planned. The GP IIb/IIIa antagonist may also be administered just prior to PCI. (Level of Evidence: B)

Class IIb

Eptifibatide or tirofiban, in addition to ASA and LMWH or UFH, to patients *without* continuing ischemia who have no other high-risk features and in whom PCI is *not* planned. (Level of Evidence: A)

Class III

Abciximab administration in patients in whom PCI is not planned. (Level of Evidence: A)

TACTICS-Eligibility Criteria

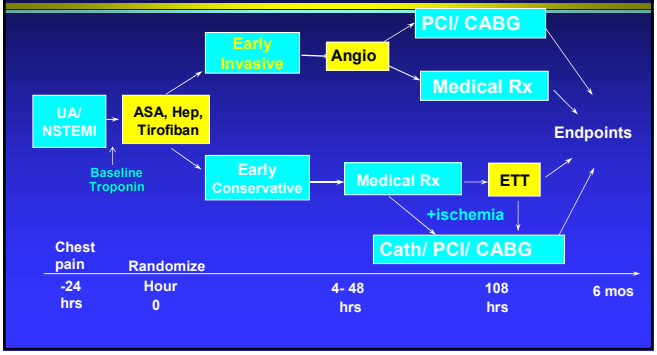
INCLUSION CRITERIA:

- Accelerating pattern, prolonged or recurrent anginal pain at rest or minimal effort <24 hrs
- At least 1 of the following:
  - Ischemic ECG changes
  - Elevated cardiac markers (local)
  - History: MI, CAD, PCI, CABG

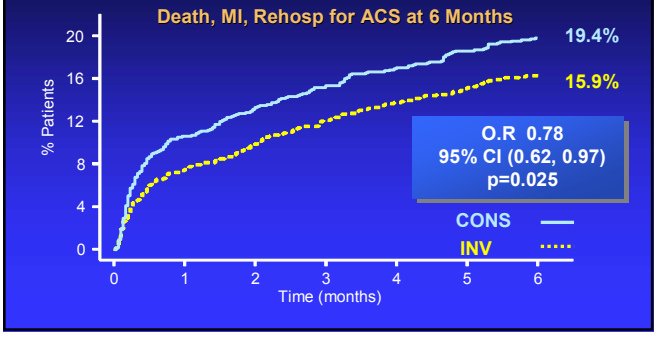
MAJOR EXCLUSION CRITERIA:

- Age < 18 years
- Acute STEMI or thrombolytic < 24h
- Increased bleeding risk (Hx. ↓ Plts, GI bleed)
- Killip Class III or IV

TACTICS-TIMI 18 Study Design



Primary Endpoint



Cardiac Events at 30 Days

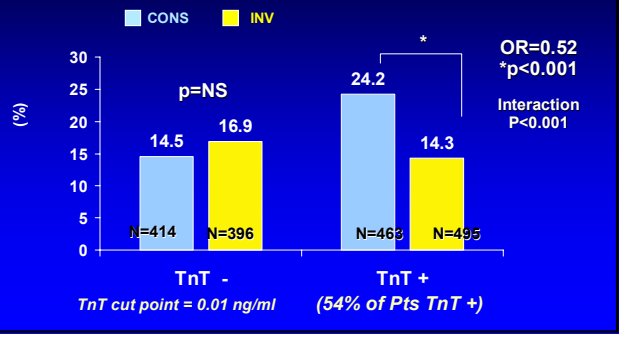
	CONS (%)	INV (%)	OR	P value
No. Pts	*1106*	*1114*		
1° Endpoint	10.5	7.4	0.67	0.009
Death/MI	7.0	4.7	0.65	0.02
Death	1.6	2.2	1.40	0. 29
MI	5.8	3.1	0.51	0.002
Rehosp ACS	5.5	3.4	0.61	0.018

Cardiac Events at 6 Months

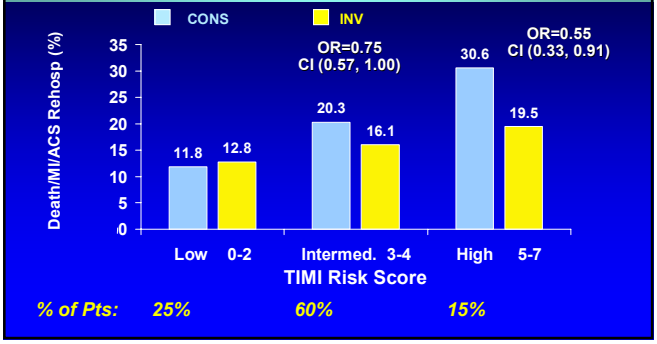
	CONS (%)	INV (%)	OR	P value
No. Pts	*1106*	*1114*		
1° Endpoint	19.4	15.9	0.78	0.025
Death/MI	9.5	7.3	0.74	<0.05
Death	3.5	3.3	0.93	0.74
MI	6.9	4.8	0.67	0.029
Rehosp ACS	13.7	11.0	0.78	0.054

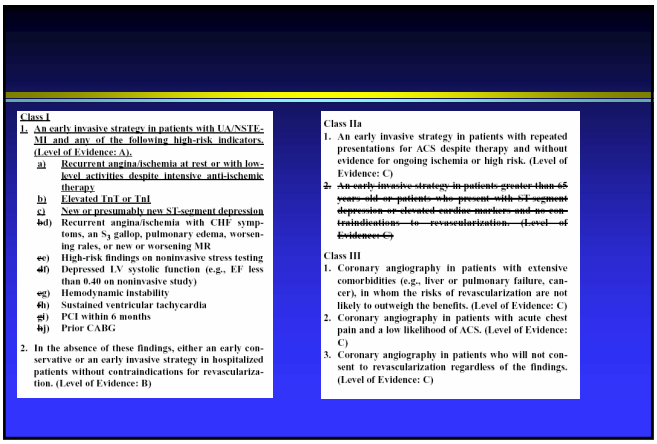
Troponin T: 1ºEP at 6 months

Death, MI, Rehosp ACS at 6 Months



TIMI UA Risk Score: 1ºEP at 6 mos





Class I

1. An early invasive strategy in patients with UA/NSTEMI and any of the following high-risk indicators (Level of Evidence: A).
   - a) Recurrent angina/ischemia at rest or with low-level activities despite intensive anti-ischemic therapy
   - b) Elevated TnT or TnI
   - c) New or presumably new ST-segment depression
   - ~~bd~~) Recurrent angina/ischemia with CHF symptoms, an S_3 gallop, pulmonary edema, worsening rales, or new or worsening MR
   - ~~ce~~) High-risk findings on noninvasive stress testing
   - ~~df~~) Depressed LV systolic function (e.g., EF less than 0.40 on noninvasive study)
   - ~~eg~~) Hemodynamic instability
   - ~~fh~~) Sustained ventricular tachycardia
   - ~~gi~~) PCI within 6 months
   - ~~hj~~) Prior CABG
2. In the absence of these findings, either an early conservative or an early invasive strategy in hospitalized patients without contraindications for revascularization. (Level of Evidence: B)

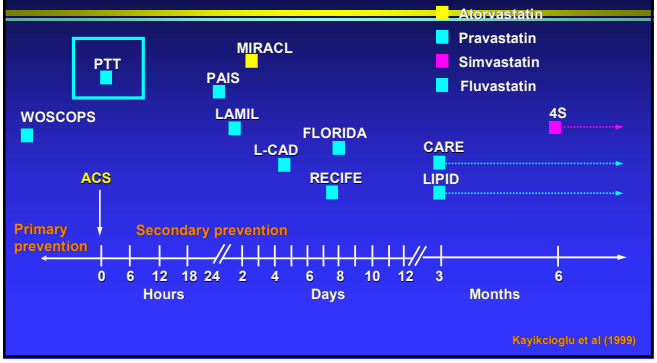
Class IIa

1. An early invasive strategy in patients with repeated presentations for ACS despite therapy and without evidence for ongoing ischemia or high risk. (Level of Evidence: C)
2. ~~An early invasive strategy in patients greater than 65 years old or patients who present with ST-segment depression or elevated cardiac markers and no contraindications to revascularization. (Level of Evidence: C)~~

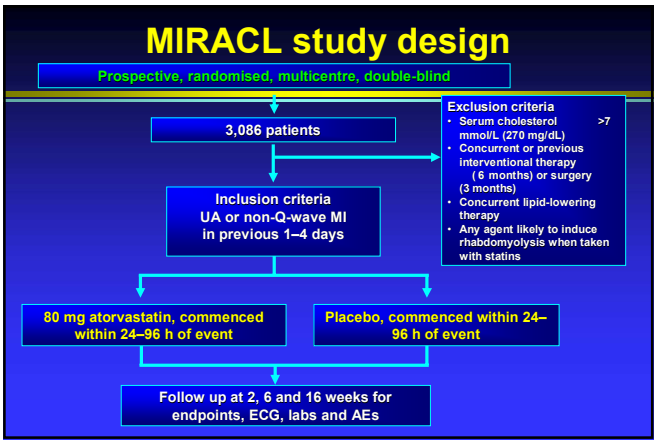
Class III

1. Coronary angiography in patients with extensive comorbidities (e.g., liver or pulmonary failure, cancer), in whom the risks of revascularization are not likely to outweigh the benefits. (Level of Evidence: C)
2. Coronary angiography in patients with acute chest pain and a low likelihood of ACS. (Level of Evidence: C)
3. Coronary angiography in patients who will not consent to revascularization regardless of the findings. (Level of Evidence: C)

Timing of statin therapy initiation after ACS in recent clinical studies



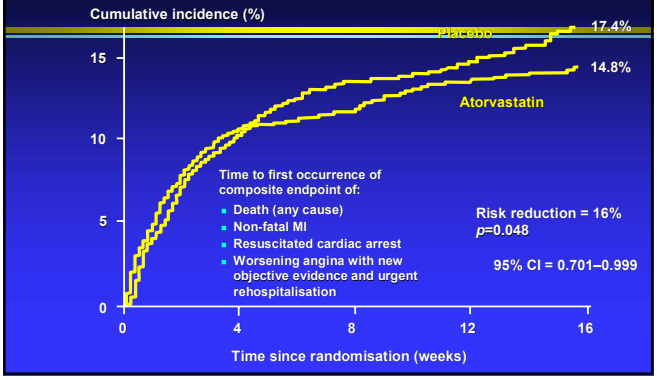
MIRACL study design



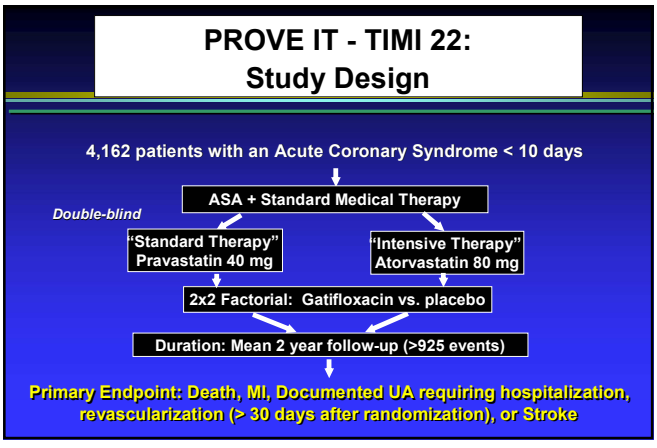
Baseline characteristics of patients

	Atorvastatin n=1538	Placebo n=1548
Inclusion event:		
Unstable angina	47%	46%
Non-Q-wave MI	53%	55%
Median time from hospital admission to randomisation	63 h	63 h

Primary efficacy measure



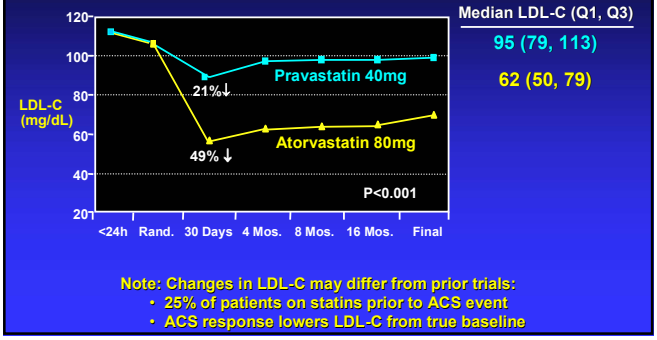
PROVE IT - TIMI 22: Study Design



Patient Population

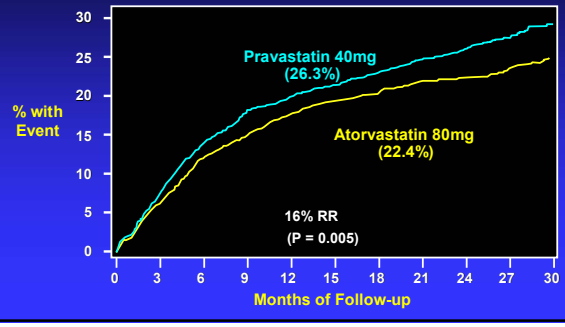
- Inclusion Criteria:
  - Hospitalization for acute MI or high-risk unstable angina < 10 d
  - Total cholesterol ≤ 240 mg/dL (< 200 mg/dL if on Lipid ↓ Rx)
  - Stabilized (i.e., without ischemia, CHF, post PCI if performed)
- Major Exclusion Criteria:
  - Co-morbidity: patient survival < 2 years
  - Current therapy with simvastatin or atorvastatin 80 mg
  - Need for, or anticipated use of fibrates or niacin
  - CABG for treatment of qualifying ACS
  - Liver disease or unexplained CK elevations
  - Strong inhibitors of CYP450 3A4 (2º atorvastatin metabolism)

Changes from (Post-ACS) Baseline in Median LDL-C

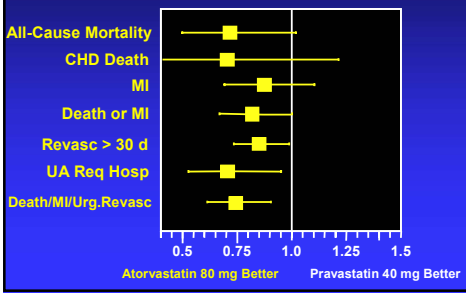


Note: Changes in LDL-C may differ from prior trials:
- 25% of patients on statins prior to ACS event
- ACS response lowers LDL-C from true baseline

All-Cause Death or Major CV Events in All Randomized Subjects



Reductions in Major Cardiac Endpoints



Class I

HMG-CoA reductase inhibitors for LDL cholesterol greater than 130 mg per dL. (Level of Evidence: A)

Lipid-lowering agent if LDL cholesterol after diet is greater than 100 mg per dL. (Level of Evidence: B)

A fibrate or niacin if high-density lipoprotein (HDL) cholesterol is less than 40 mg per dL, occurring as an isolated finding or in combination with other lipid abnormalities. (Level of Evidence: B)

Class IIa

HMG-CoA reductase inhibitors and diet for LDL cholesterol greater than 100 mg per dL begun 24 to 96 h after admission and continued at hospital discharge. *(Level of Evidence: B)*

Gemfibrozil or niacin for patients with HDL cholesterol of less than 40 mg per dL and triglycerides of greater than 200 mg per dL. (Level of Evidence: B)