Am J Cardiol (2004);93:830-5
Invasive therapy along with glycoprotein IIb/IIIa inhibitors and intracoronary stents improves survival in non-ST-segment elevation acute coronary syndromes: a meta-analysis and review of the literature
A. A. Bavry*, et al.*
Harvard School of Public Health, Boston, Massachusetts, USA. bavrya@ccf.org
Current evidence suggests that routine invasive therapy in the setting of unstable angina/non-ST-segment elevation myocardial infarction (UA/NSTEMI) reduces the incidence of composite end points (i.e., death, myocardial infarction, or angina.). The 2002 American College of Cardiology/American Heart Association guidelines recommend invasive therapy in high-risk patients, although it is unknown if such an approach improves survival. We conducted a meta-analysis on 5 studies in 6,766 UA/NSTEMI patients who were randomized to either routine invasive versus conservative therapy in the era of glycoprotein IIb/IIIa inhibitors and intracoronary stents. Compared with conservative therapy, an invasive approach suggested a reduction in mortality at 6 to 12 months (risk ratio [RR] 0.80, 95% confidence interval [CI] 0.63 to 1.03) and at 24 months (RR 0.77, 95% CI 0.60 to 0.99). The composite end point of death or myocardial infarction was reduced throughout all periods of follow-up: at 30 days (RR 0.61, 95% CI 0.45 to 0.84), at 6 months (RR 0.75, 95% CI 0.63 to 0.89), and at 12 months (RR 0.78, 95% CI 0.65 to 0.92). For the same composite end point at 6 to 12 months, men benefited from invasive therapy (RR 0.68, 95% CI 0.57 to 0.81), as did troponin-positive patients (RR 0.74, 95% CI 0.59 to 0.94). The results for women (RR 1.07, 95% CI 0.82 to 1.41) and troponin-negative patients (RR 0.82, 95% CI 0.59 to 1.14) were equivocal. Routine invasive therapy in UA/NSTEMI patients along with adjunctive use of glycoprotein IIb/IIIa inhibitors and intracoronary stents improves survival. Enhanced risk stratification is needed in women and troponin-negative patients so that invasive therapy may be more effectively recommended in these groups.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15050484

Jama (2004);292:2096-104
Utilization of early invasive management strategies for high-risk patients with non-ST-segment elevation acute coronary syndromes: results from the CRUSADE Quality Improvement Initiative
D. L. Bhatt*, et al.*
Cleveland Clinic Foundation, Department of Cardiovascular Medicine/Desk F25, Cleveland, Ohio 44195, USA. bhattd@ccf.org
CONTEXT: The American College of Cardiology/American Heart Association (ACC/AHA) guidelines for the management of non-ST-segment elevation acute coronary syndromes (NSTE ACS) recommend early invasive management for high-risk patients, given the benefits with this approach demonstrated in randomized clinical trials. OBJECTIVES: To determine the use and predictors of early invasive management strategies (cardiac catheterization <48 hours following presentation) in high-risk patients with NSTE ACS and to examine the association of early invasive management with mortality. DESIGN, SETTING, AND PATIENTS: The CRUSADE (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes With Early Implementation of the ACC/AHA Guidelines) Quality Improvement Initiative evaluated

care patterns and outcomes for 17,926 high-risk NSTE ACS patients (positive cardiac markers and/or ischemic electrocardiographic changes) based on ACC/AHA guidelines recommendations at 248 US hospitals with catheterization and revascularization facilities between March 2000 and September 2002. MAIN OUTCOME MEASURES: Use of early invasive management within 48 hours of presentation, predictors of early invasive management, and in-hospital mortality. Results Of the 17,926 patients analyzed, 8037 (44.8%) underwent early cardiac catheterization less than 48 hours following presentation. Predictors of early invasive management included cardiology care, younger age, lack of prior or current congestive heart failure, lack of renal insufficiency, ischemic electrocardiographic changes, positive cardiac markers, white race, and male sex. Patients treated with early invasive management were more likely to be treated with medications and interventions recommended by the ACC/AHA guidelines and had a lower risk of in-hospital mortality after adjusting for differences in clinical characteristics and after comparing propensity-matched pairs (2.5% vs 3.7%, P<.001). Conclusions An early invasive management strategy is not utilized in the majority of high-risk patients with NSTE ACS. This strategy appears to be reserved for patients without significant comorbidities and those cared for by cardiologists and is associated with a lower risk of in-hospital mortality.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15523070

Jama (2004);292:55-64
Safety and efficacy of enoxaparin vs unfractionated heparin in patients with non-ST-segment elevation acute coronary syndromes who receive tirofiban and aspirin: a randomized controlled trial
M. A. Blazing*, et al.*
Duke Clinical Research Institute, Durham, NC, USA. blazi001@mc.duke.edu
CONTEXT: Enoxaparin or the combination of glycoprotein IIb/IIIa inhibitor tirofiban with unfractionated heparin independently have shown superior efficacy over unfractionated heparin alone in patients with non-ST-elevation acute coronary syndromes (ACS). It is not clear if combining enoxaparin with glycoprotein IIb/IIIa inhibitors is as safe or as effective as the current standard combination of unfractionated heparin with glycoprotein IIb/IIIa inhibitors. OBJECTIVE: To assess efficacy and safety of the combination of enoxaparin and tirofiban compared with unfractionated heparin and tirofiban in patients with non-ST-elevation ACS. DESIGN, SETTING, AND PARTICIPANTS: A prospective, international,

for noninferiority. All components of the composite primary and secondary end points favored enoxaparin except death, which occurred in only 1% of patients (23 for enoxaparin and 17 for unfractionated heparin). Rates for any TIMI grade bleeding were low (3.0% for enoxaparin and 2.2% for unfractionated heparin; P =.13). Using a worst-case approach that combined 2 independent bleeding evaluations, use of enoxaparin was associated with 1 additional TIMI major bleeding episode for each 200 patients treated. CONCLUSIONS: In patients receiving tirofiban and aspirin, enoxaparin is a suitable alternative to unfractionated heparin for treatment of non-ST-elevation ACS. The 12% relative and 1% absolute reductions in the primary end point in favor of enoxaparin met criterion for noninferiority and are consistent with prior trials performed without the use of glycoprotein IIb/IIIa inhibitors.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15238591

Circulation (2004);110:1592-7
Elevations in troponin I after percutaneous coronary interventions are associated with abnormal tissue-level perfusion in high-risk patients with non-ST-segment-elevation acute coronary syndromes
L. Bolognese*, et al.*
Division of Cardiology, S. Donato Hospital, Via P. Nenni n. 22, 52100 Arezzo, Italy. leonardobolognese@hotmail.com
BACKGROUND: In the setting of non-ST-segment-elevation (NSTE) acute coronary syndromes (ACS), the pathophysiological mechanisms underlying post-percutaneous coronary intervention (PCI) cardiac troponin I (cTnI) elevation remain unclear. METHODS AND RESULTS: We evaluated the relationship between troponin elevation and tissue-level perfusion using the TIMI flow grade, corrected TIMI frame count, TIMI myocardial perfusion grade (TMPG), and myocardial contrast enhancement by intracoronary myocardial contrast echocardiography (MCE) before and immediately after PCI performed within 24 to 48 hours of hospital admission in 42 high-risk (angina at rest, unequivocal ST-segment depression, and cTnI04 Tc0.3(i)[osp009l, V.1(echa PTw[(g.)-5.35.7(I

Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA 02115, USA. cpcannon@partners.org
BACKGROUND: Lipid-lowering therapy with statins reduces the risk of cardiovascular events, but the optimal level of low-density lipoprotein (LDL) cholesterol is unclear. METHODS: We enrolled 4162 patients who had been hospitalized for an acute coronary syndrome within the preceding 10 days and compared 40 mg of pravastatin daily (standard therapy) with 80 mg of atorvastatin daily (intensive therapy). The primary end point was a composite of death from any cause, myocardial infarction, documented unstable angina requiring rehospitalization, revascularization (performed at least 30 days after randomization), and stroke. The study was designed to establish the noninferiority of pravastatin as compared with atorvastatin with respect to the time to an end-point event. Follow-up lasted 18 to 36 months (mean, 24). RESULTS: The median LDL cholesterol level achieved during treatment was 95 mg per deciliter (2.46 mmol per liter) in the standard-dose pravastatin group and 62 mg per deciliter (1.60 mmol per liter) in the high-dose atorvastatin group (P<0.001). Kaplan-Meier estimates of the rates of the primary end point at two years were 26.3 percent in the pravastatin group and 22.4 percent in the atorvastatin group, reflecting a 16 percent reduction in the hazard ratio in favor of atorvastatin (P=0.005; 95 percent confidence interval, 5 to 26 percent). The study did not meet the prespecified criterion for equivalence but did identify the superiority of the more intensive regimen. CONCLUSIONS: Among patients who have recently had an acute coronary syndrome, an intensive lipid-lowering statin regimen provides greater protection against death or major cardiovascular events than does a standard regimen. These findings indicate that such patients benefit from early and continued lowering of LDL cholesterol to levels substantially below current target levels.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15007110

Am Heart J (2004);148:62-71
Dynamic prognostication in non-ST-elevation acute coronary syndromes: insights from GUSTO-IIb and PURSUIT
W. C. Chang*, et al.*
University of Alberta, Edmonton, Alberta, Canada.
BACKGROUND: Risk assessment in patients with non-ST-elevation acute coronary syndromes (NSTE-ACS) traditionally focuses on and is limited to admission findings. The objective of the current study was to develop an approach to predicting outcome in NSTE-ACS that could account for the changing nature of risk. METHODS: In 7294 of 8010 patients with NSTE-ACS and complete electrocardiographic data in the GUSTO-IIb trial, we predicted the mortality probability at days 0-2, 0-30, 3-30, 5-30, and 7-30 using multiple logistic regression. Resulting risk estimates were incorporated into a composite, dynamic model to estimate the effects of changing probabilities over time. These models were validated against an independent sample of 9461 patients from the PURSUIT trial. RESULTS: As time passed after admission, the risk of 30-day death declined in stable patients. This risk, which was 3.72% at baseline, declined to 1.92% in 6-day survivors, and the risk reduction was greatest for those with the highest baseline risk. Importantly, however, the development

update the longer-term prognosis with increasing accuracy: the C-index increased from 0.75 for the day 0-30 model to 0.81 and 0.82 for the composite and day 7-30 models, respectively. CONCLUSIONS: Dynamic risk assessment is feasible and reliable. This approach can improve risk assessment and provide valuable guidance for management of patients with NSTE-ACS.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15215793

Circulation (2004);110:2361-7
Impact of prior use or recent withdrawal of oral antiplatelet agents on acute coronary syndromes
J. P. Collet*, et al.*
Institute of Cardiology, Pitie-Salpetriere Hospital, Paris, France.
BACKGROUND: Oral antiplatelet agents (OAAs) can prevent further vascular events in cardiovascular disease. How prior use or recent discontinuation of OAA affects clinical presentation of acute coronary syndromes (ACS) and clinical outcomes (death, myocardial infarction [MI]) is unclear. METHODS AND RESULTS: We studied and followed up for up to 30 days a cohort of 1358 consecutive patients admitted for a suspected ACS; of these, 930 were nonusers, 355 were prior users of OAA, and 73 had recently withdrawn OAA. Nonusers were at lower risk, more frequently presented with ST-elevation MI on admission, and more frequently had Q-wave MI at discharge than prior users (36.6% versus 17.5%, P<0.001; and 47.8% versus 28.2%, P<0.001, respectively). However, there was no difference regarding the incidence of death or MI at 30 days between nonusers and prior users (10.3% versus 12.4%, P=NS). In addition, prior users experienced more major bleeds within 30 days compared with nonusers (3.4% versus 1.4%, respectively; P=0.04). Recent withdrawers were admitted on average 11.9+/-0.8 days after OAA withdrawal. Interruption was primarily a physician decision for scheduled surgery (n=47 of 73). Despite a similar cardiovascular risk profile, recent withdrawers had higher 30-day rates of death or MI (21.9% versus 12.4%, P=0.04) and bleedings (13.7% versus 5.9%, P=0.03) than prior users. After multivariate analysis, OAA withdrawal was found to be an independent predictor of both mortality and bleedings at 30 days. CONCLUSIONS: Among ACS patients, prior users represent a higher-risk population and present more frequently with non-ST-elevation ACS than nonusers. Although patients with a recent interruption of OAA resemble those chronically treated by OAA, they display worse clinical outcomes.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15477397

Am Heart J (2004);147:655-61
Subcutaneous enoxaparin with early invasive strategy in patients with acute coronary syndromes
J. P. Collet*, et al.*
Department of Cardiology, Pitie-Salpetriere Hospital, Paris, France.
BACKGROUND: Subcutaneous enoxaparin during at least 48 hours provides adequate anticoagulation and good clinical results in patients with non-ST-segment elevation acute coronary syndromes undergoing percutaneous coronary intervention (PCI). METHODS: In this nonrandomized retrospective study, we compared 347 patients with

non-ST-segment elevation acute coronary syndromes who underwent rapid PCI after only 2 injections of subcutaneous enoxaparin (EI, n = 117) to those referred later to the catheterization laboratory with >or=3 injections (DI, n = 230). We measured anti-Xa at the time of PCI and evaluated bleeding and major ischemic events (death/myocardial infarction) at 30 days. RESULTS: Patients in the EI group more frequently received glycoprotein IIb/IIIa inhibitors and clopidogrel preceding PCI than did patients in the DI group (58.1% vs 31.7%, P <.0001 for glycoprotein IIb/IIIa inhibitors and 68.4% vs 40.4% for clopidogrel pretreatment, P <.0001, respectively). The anti-Xa activity measured at the time of catheterization (0.92 +/- 0.04 U/mL vs 0.96 +/- 0.02 U/mL, EI vs DI, P =.25) and the injection-to-catheterization times (5.6 +/- 0.2 h vs 5.2 +/- 0.1 h, EI vs DI, P =.17) were similar in both groups. The 30-day bleeding rates of 1.7% and 4.8% in the EI and DI strategies were found to be equivalent with a significant non-inferiority test for the EI strategy (P <.05). There was a nonsignificant trend for less death or myocardial infarction at 30 days in the EI group compared to the DI group (4.3% vs 7.0%, non-inferiority test not significant). CONCLUSION: A rapid invasive strategy with only 2 subcutaneous injections of enoxaparin provides similar levels of anticoagulation, and is associated with a favorable trend for ischemic events and with safety equivalent to a more prolonged "upstream" treatment with enoxaparin.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15077081

Jama (2004);292:1307-16
Early intensive vs a delayed conservative simvastatin strategy in patients with acute coronary syndromes: phase Z of the A to Z trial
J. A. de Lemos*, et al.*
Donald W. Reynolds Cardiovascular Clinical Research Center, the University of Texas Southwestern Medical Center, Dallas 75390-9047, USA. james.delemos@utsouthwestern.edu).
CONTEXT: Limited data are available evaluating how the timing and intensity of statin therapy following an acute coronary syndrome (ACS) event affect clinical outcome. OBJECTIVE: To compare early initiation of an intensive statin regimen with delayed initiation of a less intensive regimen in patients with ACS. DESIGN, SETTING, AND PARTICIPANTS: International, randomized, double-blind trial of patients with ACS receiving 40 mg/d of simvastatin for 1 month followed by 80 mg/d thereafter (n = 2265) compared with ACS patients receiving placebo for 4 months followed by 20 mg/d of simvastatin (n = 2232), who were enrolled in phase Z of the A to Z trial between December 29, 1999, and January 6, 2003. MAIN OUTCOME MEASURE: The primary end point was a composite of cardiovascular death, nonfatal myocardial infarction,

simvastatin only group (40 mg/80 mg) (hazard ratio [HR], 0.89; 95% confidence interval [CI] 0.76-1.04; P =.14). Cardiovascular death occurred in 109 (5.4%) and 83 (4.1%) patients in the 2 groups (HR, 0.75; 95% CI, 0.57-1.00; P =.05) but no differences were observed in other individual components of the primary end point. No difference was evident during the first 4 months between the groups for the primary end point (HR, 1.01; 95% CI, 0.83-1.25; P =.89), but from 4 months through the end of the study the primary end point was significantly reduced in the simvastatin only group (HR, 0.75; 95% CI, 0.60-0.95; P =.02). Myopathy (creatine kinase >10 times the upper limit of normal associated with muscle symptoms) occurred in 9 patients (0.4%) receiving simvastatin 80 mg/d, in no patients receiving lower doses of simvastatin, and in 1 patient receiving placebo (P =.02). CONCLUSIONS: The trial did not achieve the prespecified end point. However, among patients with ACS, the early initiation of an

median NT-proBNP level was 353 ng/L (107 to 1357 ng/L). Compared with the lowest quartile, patients in the second, third, and fourth quartiles had a relative risk of subsequent death of 2.94 (95% CI, 1.15 to 7.52), 5.32 (95% CI, 2.19 to 12.91), and 11.5 (95% CI, 4.90 to 26.87), respectively. The NT-proBNP was independently associated with death in a logistic regression model, which included clinical variables, ECG, and troponin T in patients either with (OR of highest versus lowest quartile, 7.0; 95% CI, 1.9 to 25.6) or without (OR of highest versus lowest quartile, 4.1; 95% CI, 1.1 to 14.6) persistent ST-segment elevation. NT-proBNP was also an independent predictor of severe heart failure. CONCLUSIONS: The measurement of NT-proBNP on admission improves the early risk stratification of patients with ACS, suggesting the need for the development of targeted therapeutic strategies.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15197143

Am J Cardiol (2004);93:813-6
Correlation of TIMI risk score with angiographic severity and extent of coronary artery disease in patients with non-ST-elevation acute coronary syndromes
S. Garcia*, et al.*
Division of Cardiology, Department of Medicine, Jackson Memorial Hospital, University of Miami School of Medicine, Miami, Florida, USA.
The Thrombolysis In Myocardial Infarction (TIMI) risk score predicts adverse clinical outcomes in patients with non-ST-elevation acute coronary syndromes (NSTEACS). Whether this score correlates with the coronary anatomy is unknown. We sought to determine whether the TIMI risk score correlates with the angiographic extent and severity of coronary artery disease (CAD) in patients with NSTEACS undergoing cardiac catheterization. We conducted a retrospective review of 688 consecutive medical records of patients who underwent coronary angiography secondary to NSTEACS. Patients were classified into 3 categories according to TIMI risk score: TIMI scores 0 to 2 (n = 284), 3 to 4 (n = 301), and 5 to 7 (n = 103). One-vessel disease was found in patients with TIMI score 3 to 4 as often as in patients with TIMI score 0 to 2 (odds ratio [OR] 1.08, 95% confidence interval [CI] 0.74 to 1.56; p = 0.66). However, 1-vessel disease was found more often in patients with TIMI score 3 to 4 than in patients with TIMI score 5 to 7 (OR 2.16, 95% CI 1.18 to 3.95; p = 0.01), and in patients with TIMI score 0 to 2 than in those with TIMI score 5 to 7 (OR 1.99, 95% CI 1.08 to 3.66; p = 0.02). Two-vessel disease was more likely found in patients with TIMI score 3 to 4 than in those with TIMI scores 0 to 2 (OR 3.96, 95% CI 2.41 to 6.53; p <0.001) and 5 to 7 (OR 2.05, 95% CI 1.12 to 3.75; p = 0.004). Three-vessel or left main disease was more likely found in patients with TIMI score 3 to 4 than in patients with TIMI score 0 to

syndromes
T. J. Gluckman*, et al.*
Division of Cardiology, the Johns Hopkins Hospital, Baltimore, Md, USA.
CONTEXT: While current practice guidelines provide an evidence-based approach to management of acute coronary syndromes (ACS), application of the evidence by individual physicians has been suboptimal. OBJECTIVE: To assess and synthesize the evidence regarding optimal management of non-ST-segment elevation ACS (NSTE-ACS). DATA SOURCES: Systematic searches of peer-reviewed publications were performed in MEDLINE and the Cochrane Database from January 1990 through November 2004, with consultation by content experts. Search terms included antiplatelet therapy, antithrombotic therapy, angiotensin-converting enzyme inhibition, angiotensin receptor blockade, beta-blockade, hypertension, hyperlipidemia, cigarette smoking, diet, diabetes mellitus, exercise, myocardial ischemia, and coronary artery disease. STUDY SELECTION AND DATA EXTRACTION: Criteria for selection of studies included controlled study design, English language, and clinical pertinence. Data quality was based on the publishing journal and relevance to clinical management of NSTE-ACS. DATA SYNTHESIS: While outcomes of controlled studies support a comprehensive approach in the management of patients with NSTE-ACS, many physicians perceive existing guidelines as lengthy and complex. After risk stratification to identify those patients most likely to benefit from an early invasive vs early conservative strategy, a comprehensive management plan can be assembled through an "ABCDE" approach. The elements of this include "A" for antiplatelet therapy, anticoagulation, angiotensin-converting enzyme inhibition, and angiotensin receptor blockade; "B" for beta-blockade and blood pressure control; "C" for cholesterol treatment and cigarette smoking cessation; "D" for diabetes management and diet; and "E" for exercise. CONCLUSION: An "ABCDE" approach for the management of NSTE-ACS provides a practical and systematic means to implement evidence-based medicine into clinical practice.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15657328

Am J Cardiol (2004);93:288-93
Six-month outcomes in a multinational registry of patients hospitalized with an acute coronary syndrome (the Global Registry of Acute Coronary Events [GRACE])
R. J. Goldberg*, et al.*
Department of Medicine, Division of Cardiovascular Medicine, University of Massachusetts Medical School, Worcester, Massachusetts 01655, USA.
Goldberr@ummhc.edu
Relatively limited data are available, particularly from the perspective of a multinational registry, about the post-discharge outcomes and management practices of patients with an acute coronary syndrome (ACS). The objectives of this longitudinal study were to examine 6-month outcomes in a large multinational sample of patients hospitalized with an ACS. A total of 5,476 patients with ST-segment elevation acute myocardial infarction (STEAMI), 5,209 patients with non-ST-segment elevation acute myocardial infarction (NSTEAMI), and 6,149 patients with unstable angina pectoris discharged from 90 hospitals in 14 countries comprised the study population. The study sample was recruited from 18 cluster sites in 14 countries that are currently collaborating in the

Global Registry of Acute Coronary Events (GRACE) study. The 6-month post-discharge death rates were 4.8% in patients with STEAMI, 6.2% in patients with NSTEAMI, and 3.6% in patients with unstable angina pectoris. Approximately 1 in 5 of each of our comparison groups were rehospitalized for heart disease during the 6-month follow-up, and approximately 15% of each of the respective study cohorts underwent coronary revascularization during follow-up. Demographic and clinical characteristics of post-discharge decedents were identified according to type of ACS. Our results suggest that a considerable proportion of patients who were discharged from the hospital after an ACS, with some differences noted according to type of ACS, remain at increased risk for adverse outcomes during the relatively brief post-discharge period. These data suggest the need for better long-term medical management and more intense follow-up of patients with an ACS to improve their long-term outlook.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14759376

Eur Heart J (2004);25:25-31
Flu vaccination in acute coronary syndromes and planned percutaneous coronary interventions (FLUVACS) Study
E. P. Gurfinkel*, et al.*
Foundation Favaloro, Av. Belgrano 1746 (1093), Capital Federal, Buenos Aires, Argentina. epgurfinkel@ffavaloro.org
AIMS: We have previously reported a significant benefit of vaccination against flu on the incidence of a single and composite end-point of death, myocardial infarction or recurrent ischaemia in patients with myocardial necrosis and planned percutaneous coronary interventions. To determine whether the observed benefits of vaccination against flu were maintained beyond the winter season a 1-year follow-up was conducted. METHODS AND RESULTS: During the winter season, we enrolled prospectively 200 myocardial infarction patients admitted in the first 72 h, and 101 planned angioplasty/stent patients (PCI) without unstable coronary artery disease, prior by-pass surgery, angioplasty or tissue necrosis. Only four patients failed to meet the inclusion criteria. Participants were randomly allocated to receive flu vaccination or remain unvaccinated on top of standard medication (control group). The study was conducted in hospitalized patients with the aim to test the potential beneficial effect of flu vaccination in a secondary prevention scenario. Under intention to treat analysis the incidence of the primary end-point cardiovascular death at 1 year was significantly lower among patients receiving vaccination, 6% as compared with controls, 17% (relative risk

impact on flu vaccination on outcome after acute coronary syndromes.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14683739

J Am Coll Cardiol (2004);43:346-52
Importance of increasing age on the presentation and outcome of acute coronary syndromes in elderly patients
D. A. Halon*, et al.*
Department of Cardiology, Lady Davis Carmel Medical Center, 7 Michal Street, Haifa 34362, Israel. halon@clalit.org.il
OBJECTIVES: The study examined differences in presentation and outcome between elderly (> or =70 years) and very elderly (> or =80 years) patients hospitalized for acute coronary syndromes (ACS). BACKGROUND: The elderly constitute an increasingly important sector of patients with ACS but have been underrepresented in many therapeutic trials. METHODS: We compiled a registry of 449 consecutive patients, 251 elderly (70 to 79 years) (septuagenarians, group 1) and 198 very elderly (> or =80 years) (group 2), to examine outcomes in relation to baseline characteristics and treatment. We recorded survival over a period of 24 +/- 4 months and rehospitalization and symptomatic status at 16 +/- 4 months. RESULTS: At index hospitalization, the older cohort (group 2) more often had acute myocardial infarction (35% vs. 9.7%, p < 0.0001), heart failure (33.3% vs. 19.4%, p < 0.001), and renal dysfunction (21.6% vs. 12.3%, p = 0.01). They were less likely to undergo coronary angiography (29.3% vs. 43.8%, p = 0.002), but those selected for angiography more often underwent revascularization so that revascularization rates were similar (22.7% group 2 vs. 24.3% group 1, p = NS). Two-year survival rate was poorer in group 2 (67.4 +/- 3.5% vs. 83.5 +/- 2.5% in group 1, p < 0.0001). Repeat rehospitalization was similar (53.0% vs. 48.2%, respectively, p = 0.31), but improvement in well-being of survivors was greater (60.0% vs. 46.3%, p = 0.01). CONCLUSIONS: The study demonstrated important differences between elderly (70 to 79 years) and very elderly (> or =80 years) patients hospitalized with ACS. The older cohort was sicker on admission and had poorer outcome, but a subgroup selected for angiography and possible intervention had two-year outcomes similar to the younger cohort.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15013113

Chest (2004);126:935-41
Prehospital therapy with the platelet glycoprotein IIb/IIIa inhibitor eptifibatide in patients with suspected acute coronary syndromes: the Bochum feasibility study
C. Hanefeld*, et al.*
Medical Clinic II (Cardiology & Angiology), St. Josef-Hospital/Berufsgenossenschaftliche Kliniken Bergmannsheil, University Hospitals of the Ruhr-University, Gudrunstrasse 56, D-44791 Bochum, Germany.
STUDY OBJECTIVES: To assess the practical application and safety of prehospital antithrombotic therapy with the glycoprotein (GP) IIb/IIIa inhibitor eptifibatide for patients with suspected acute coronary syndrome (ACS) or myocardial infarction (MI). DESIGN: Open-labeled pilot study. Patients with typical chest pain who were seen within 6 h of the onset of symptoms were enrolled in the mobile emergency ambulance. Patients

n&list_uids=15262833

Eur Heart J (2005);26:128-36
Outcomes of patients with acute coronary syndromes and prior percutaneous coronary intervention: a pooled analysis of three randomized clinical trials
M. Labinaz, et al.
University of Ottawa Heart Institute, Division of Cardiology, 40 Ruskin Ave, Rm H-150 Ottawa, Ontario, K1Y 4W7 Canada.
AIMS: We sought to characterize the outcomes of patients with a prior percutaneous coronary intervention (PCI) who presented with a non-ST-segment elevation acute coronary syndrome (ACS). METHODS AND RESULTS: We analysed the 30 and 180 day outcomes of 3012 patients with prior PCI and 21 154 patients without prior PCI enrolled in three randomized ACS trials (GUSTO IIb, PURSUIT, and PARAGON-B). The median (25th, 75th percentile) interval between the prior PCI and randomization was 647 (123, 1585) days. Patients with prior PCI had significantly more adverse baseline clinical characteristics, left ventricular dysfunction, and multi-vessel coronary artery disease. After adjusting for baseline characteristics and treatment, we found that patients with prior PCI had a significantly lower mortality rate at 30 days [hazard ratio (HR), 0.60; 95% confidence interval (CI), 0.45-0.80; P=0.0006] and 180 days (HR, 0.81; 95% CI, 0.66-0.98; P=0.029). However, no difference was observed in the composite of death or myocardial infarction (MI) at 30 days (HR, 0.95; 95% CI, 0.83-1.08; P=0.42) or 180 days (HR, 1.01; 95% CI, 0.90-1.13; P=0.90). Patients with prior PCI had a higher rate of MI at 180 days (13.3 vs. 12.0%; P=0.045). Prior-PCI patients had lower incidences of in-hospital cardiogenic shock, congestive heart failure (CHF), and atrial fibrillation. CONCLUSION: Patients with prior PCI who present with non-ST-segment elevation ACS have a lower mortality rate than those without prior PCI.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15618068

Circulation (2004);109:855-60
Cardiovascular events in diabetic and nondiabetic adults with or without history of myocardial infarction
C. D. Lee, et al.
Department of Sports and Exercise Sciences, West Texas A&M University, Canyon, Tex, USA.
BACKGROUND: Whether diabetic patients without a history of myocardial infarction (MI) have the same risk of coronary heart disease (CHD) events as nondiabetic patients with a history of MI remains controversial. We compared risks of CHD and stroke events and mortality from cardiovascular disease (CVD) in diabetic and nondiabetic men and women with and without a history of MI. METHODS AND RESULTS: We followed a total of 13 790 African American and white men and women ages 45 to 64 years who participated in the Atherosclerosis Risk in Communities study, beginning in 1987 to 1989. There were 634 fatal CHD or nonfatal MI events, 312 fatal or nonfatal strokes, and 358 deaths from CVD during an average of 9 years of follow-up (125 998 person-years). After ad [(and 358)-5x.1(deg6(T)3.8(S)-6.9(:)-eardiogeni)29(7.1(T)3.Wardiogeni)29(t.8

2.56; P<0.001) compared with diabetic patients without a prior history of MI. The nondiabetic patients with MI also had 1.8 times the risk of CVD mortality compared with diabetic patients without MI (95% CI, 1.22 to 2.72; P=0.003). However, stroke risk was similar between diabetic patients without MI and nondiabetic patients with MI (RR, 1.05; 95% CI, 0.61 to 1.79; P=0.87). We also observed that nondiabetic patients with MI had a carotid artery wall thickness similar to diabetic patients without MI (P=0.77). CONCLUSIONS: Diabetic patients without MI had lower risk of CHD events and mortality from CVD compared with nondiabetic patients with MI, but stroke risk was similar between these 2 groups.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14757692

J Am Coll Cardiol (2004);43:966-71
Administration of eptifibatide to acute coronary syndrome patients receiving enoxaparin or unfractionated heparin: effect on platelet function and thrombus formation
E. I. Lev*, et al.*
Cardiology Department, Rabin Medical Center, 39 Jabotinski Street, Petah-Tikva 49100, Israel.
OBJECTIVES: The goal of this study was to compare the antithrombotic effects of enoxaparin versus unfractionated heparin (UFH) when combined with eptifibatide in acute coronary syndrome (ACS) patients. BACKGROUND: An increasing number of high-risk ACS patients are treated with low-molecular-weight heparin and a glycoprotein (GP) IIb/IIIa inhibitor. There is a paucity of data regarding the antithrombotic properties of such a combination as compared with UFH and GP IIb/IIIa inhibitors. METHODS: Twenty-six ACS patients scheduled to undergo coronary angiography were treated with subcutaneous enoxaparin (n = 13) or intravenous UFH (n = 13). All patients received eptifibatide just before coronary angiography. Antithrombotic effects were assessed as changes in platelet-thrombus formation using the Badimon ex vivo perfusion chamber. Perfusions were carried out at a high shear rate (HSR) and a low shear rate (LSR). Patients underwent two perfusion studies: at baseline (under enoxaparin or UFH) and 10 min after the eptifibatide bolus. Platelet function was evaluated by ADP-induced platelet aggregation and the rapid platelet function analyzer. RESULTS: Both therapeutic combinations achieved a marked reduction in platelet aggregation after eptifibatide (83% to 89.7% reduction in the enoxaparin-eptifibatide group and 77.8% to 85.5% reduction in the UFH-eptifibatide group, inter-group differences not significant). Both groups also demonstrated marked reductions in thrombus formation, but the reductions achieved in the enoxaparin-eptifibatide group were significantly higher than those achieved in the UFH-eptifibatide group (HSR: 75.6% reduction vs. 63.9%, respectively, p = 0.01; LSR: 79.7% reduction vs. 66.1%, respectively, p = 0.0001). CONCLUSIONS: The combination of eptifibatide with enoxaparin appears to have a more potent antithrombotic effect than that of eptifibatide and UFH in the doses tested.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15028351

Circulation (2004);110:2333-5
There is no evidence for an increase in acute coronary syndromes after short-term abrupt discontinuation of statins in stable cardiac patients

M. P. McGowan
New England Heart Institute, 100 McGregor St, Manchester, NH 03102.
mmcgowan@cmc-nh.org.
BACKGROUND: For a variety of reasons, many patients abruptly discontinue statin therapy. The present analysis was conducted to determine whether the risk of cardiovascular outcomes increases after withdrawal of statin therapy in a stable cardiac population. METHODS AND RESULTS: In the Treating to New Target (TNT) study, 2 doses of atorvastatin (10 and 80 mg once daily) are being used in a double-blind parallel-group design. Of the 18,468 patients screened for study participation, 16,619 entered a dietary lead-in/drug-washout period, and of these, 15,432 eligible participants began treatment with atorvastatin 10 mg/d on an open-label basis. Of the subjects who entered the dietary lead-in/drug-washout period, 57% were receiving prior statin therapy. During the 6-week drug-washout period, there were 24 primary events (defined as coronary heart disease death, nonfatal myocardial infarction, resuscitated cardiac arrest, and fatal or nonfatal stroke); throughout the subsequent 8-week open-label period, there were 31 primary events. This equated to monthly Kaplan-Meier event rates of 0.20% during washout and 0.26% in the open-label phase. Event rates were therefore similar during the 2 phases. CONCLUSIONS: The present analysis demonstrates that short-term discontinuation of statin therapy in stable cardiac patients apparently does not lead to a clinically important increased risk of acute coronary syndromes.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15477411

Am Heart J (2004);147:246-52
Association of diabetes mellitus and glycemic control strategies with clinical outcomes after acute coronary syndromes
D. K. McGuire*, et al.*
Donald W. Reynolds Cardiovascular Clinical Research Center at the University of

2.1 [1.2, 3.7]). CONCLUSIONS: Diabetic patients with acute coronary syndromes had worse clinical outcomes. Although the findings regarding the influence of glycemic-control strategies should be interpreted with caution because of the exploratory nature of the analyses and the relatively small sample size of the insulin-sensitizing group, the improved risk-adjusted outcomes associated with insulin-sensitizing therapy underscore the need to further evaluate treatment strategies for patients with diabetes and CAD.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14760321

Circulation (2004);109:745-9
Impact of combination evidence-based medical therapy on mortality in patients with acute coronary syndromes
D. Mukherjee*, et al.*
University of Michigan, Ann Arbor, Mich, USA. dmukherj@umich.edu
BACKGROUND: Several individual pharmacological agents, such as antiplatelet drugs, beta-blockers, ACE inhibitors, and lipid-lowering agents, have proven efficacy in reducing mortality in patients with acute coronary syndromes. However, the impact of the combination of these agents on clinical outcomes has not been studied before. METHODS AND RESULTS: A total of 1358 consecutive patients presenting with acute coronary syndromes between January 1999 and March 2002 were identified, and data on baseline demographics, comorbidities, and in-hospital management were collected. On the basis of discharge use of evidence-based therapies, we created a composite appropriateness score depending on the number of the drugs used divided by the number of the drugs potentially indicated for each patient. The impact of the composite score on 6-month mortality was analyzed using a risk-adjusted logistic regression model. The odds ratio for death for all indicated medications used (appropriateness level IV) versus none of the indicated medications used (appropriateness level 0) was 0.10 (95% CI, 0.03 to 0.42; P<0.0001); similarly, odds ratio for appropriateness level III versus level 0 was 0.17 (95% CI, 0.04 to 0.75; P=0.0018), odds ratio for appropriateness level II versus level 0 was 0.18 (95% CI, 0.04 to 0.77; P=0.01), and odds ratio for appropriateness level I versus level 0 was 0.36 (95% CI, 0.08 to 1.75; P=0.20). CONCLUSIONS: Use of combination evidence-based medical therapies was independently and strongly associated with lower 6-month mortality in patients with acute coronary syndromes. Such therapies, most of which are generic and inexpensive today, seem to offer a marked survival advantage compared with patients in whom such therapies are omitted.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14970110

Circulation (2004);109:465-70

syndromes (NSTE-ACS) have been shown to predict an adverse outcome. Furthermore, it has been reported that troponin T could help improve the effectiveness of such new antithrombotic drugs as platelet GPIIb/IIIa antagonists and low-molecular-weight heparins. We hypothesized that such elevated troponin T levels in NSTE-ACS indicate the presence of thrombus at culprit lesions, and this hypothesis was verified through the use of coronary angioscopy. METHODS AND RESULTS: We studied 57 consecutive patients with NSTE-ACS who underwent preinterventional angioscopy. Before catheterization, we obtained blood samples to determine troponin positivity, and the patients were then classified as either troponin-positive or troponin-negative groups (diagnostic threshold, 0.1 ng/mL). Using angioscopy at the culprit lesions, we examined the presence of coronary thrombus, yellow plaque, and complex plaque. Moreover, we compared the preinterventional angiographic parameters (thrombus and complexity of the culprit lesion, and TIMI flow) between the two groups. Twenty-two patients were troponin-positive and 35 patients were troponin-negative. Univariate analyses indicated that the TIMI flow and the incidence of coronary thrombus detected with angioscopy correlate with the elevated troponin T levels. A multivariate logistic regression analysis showed the presence of coronary thrombus detected with angioscopy to be the only independent factor associated with elevated troponin T levels in patients with NSTE-ACS (odds ratio, 22.1; 95% CI, 2.59 to 188.42; P=0.0046). CONCLUSIONS: Using angioscopy, the elevated troponin T levels in NSTE-ACS were confirmed to be strongly associated with the presence of coronary thrombus.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14732748

Circulation (2004);110:1061-8
Early statin treatment in patients with acute coronary syndrome: demonstration of the beneficial effect on atherosclerotic lesions by serial volumetric intravascular ultrasound analysis during half a year after coronary event: the ESTABLISH Study
S. Okazaki*, et al.*
Department of Cardiology, Juntendo University School of Medicine, 2-1-1 Hongo, Bunkyo-ku Tokyo 113-8421 Japan. shinya@med.juntendo.ac.jp
BACKGROUND: Recent clinical trials have demonstrated that aggressive lipid lowering by statins could prevent recurrent events after acute coronary syndrome (ACS). We hypothesized that this efficacy was caused by a significant reduction in plaque volume by aggressive LDL cholesterol (LCL-C) lowering. The present study investigated the

(R=0.456, P=0.0011) and percent LDL-C reduction (R=0.612, P<0.0001), even in patients with baseline LDL-C <125 mg/dL. CONCLUSIONS: Early aggressive lipid-lowering therapy by atorvastatin for 6 months significantly reduced the plaque volume in patients with ACS. Percent change in plaque volume showed a significant positive correlation with percent LDL-C reduction, even in patients with low baseline LDL-C.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15326073

Am Heart J (2004);148:405-15
Clinical significance of a single measurement of troponin-I and C-reactive protein at admission in 1773 consecutive patients with acute coronary syndromes
L. Oltrona*, et al.*
Dipartimento Cardiotoracovascolare A. De Gasperis, Ospedale Niguarda, Milano, Italy.
BACKGROUND: The clinical significance of biochemical markers of myocardial damage or inflammation has not been prospectively established in populations representing the whole spectrum of acute coronary syndromes. We investigated whether the elevation of these biomarkers at admission has a prognostic value that is independent and incremental to baseline clinical variables and quantitative electrocardiographic ischemia. METHODS: We measured blood levels of cardiac troponin I (cTnI) and C-reactive protein (CRP) in 1773 consecutive patients admitted to 31 Italian coronary care units within 12 hours from an episode of acute coronary syndrome. Primary and secondary outcomes were (1) 30-day incidence of death or nonfatal (re)infarction and (2) death alone. RESULTS: In a multivariate model, cTnI was independently associated with the risk of death or (re)infarction (OR, 1.8; 95% CI, 1.2 to 2.6; P =.002) and death (OR, 2.2; 95% CI, 1.4 to 3.4; P <.001), whereas CRP was of borderline significance for the primary outcome but was associated with death (OR, 1.4; 95% CI, 1.0 to 2.1; P =.06, and OR, 1.7; 95% CI, 1.1 to 2.6; P =.01, respectively). However, the inclusion of the biomarkers did not increase the prognostic capacity of the clinical risk model (C-index of both models with and without biomarkers was 0.73 for the primary outcome measures and 0.80 for the secondary outcome measures). CRP further stratified cTnI-negative patients. The prognostic significance of the biomarkers was similar in patients with and in those without persistent ST-segment elevation. CONCLUSIONS: In acute coronary syndromes, the elevation of cTnI and CRP at admission has an independent prognostic

comparing invasive versus medical treatment in patients with an acute coronary syndrome without ST elevation do not consistently show improvement in survival after revascularisation. Accordingly, additional data are warranted. METHODS: The effect of revascularisation within 30 days on one-year survival in the GUSTO IV ACS trial was investigated. A total of 7800 patients were included with an acute coronary syndrome without ST elevation, documented by either elevated cardiac troponin or transient or persistent ST-segment depression. In this trial, comparing abciximab versus placebo as initial medical therapy, coronary angiography within 60 h after randomisation was discouraged. In 30-day survivors, those who underwent revascularisation were compared with 30-day survivors without revascularisation. Adjustments were made for patient characteristics, and for a propensity score that was adjusted for covariates associated with the likelihood of early revascularisation. FINDINGS: Of the 7496 patients who survived at least 30 days, 2265 (30%) underwent coronary revascularisation within 30 days: 789 patients CABG, 1450 PCI and 26 both CABG and PCI. Procedure-related mortality was low at 1.8%. Patients with revascularisation had a lower one-year mortality compared to medically treated patients (2.3% vs. 5.6%, $p < 0.001$). After multivariable analyses, patients with revascularisation had a relative risk of subsequent mortality within 1 year of 0.53 (95% CI 0.37-0.77) compared to patients without revascularisation. CONCLUSIONS: Revascularisation within 30 days is associated with an improved prognosis in ACS without ST-segment elevation. The relative high mortality in medically treated patients may be related in part to patient selection, but warrants further studies to improve outcome of these patients.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15342168

Jama (2004);292:89-96
Efficacy and bleeding complications among patients randomized to enoxaparin or unfractionated heparin for antithrombin therapy in non-ST-Segment elevation acute coronary syndromes: a systematic overview
J. L. Petersen*, et al.*
Duke Clinical Research Institute, Durham, NC 27715, USA.
CONTEXT: Antithrombin therTw[(Duk)5.1av4.8(uiST(Antit)C09 Tcya bed t3TJ95.3(1(Pet)-SC3TJ95)-7

significant difference was found in death at 30 days for enoxaparin vs unfractionated heparin (3.0% vs 3.0%; odds ratio [OR], 1.00; 95% confidence interval [CI], 0.85-1.17). A statistically significant reduction in the combined end point of death or nonfatal MI at 30 days was observed for enoxaparin vs unfractionated heparin in the overall trial populations (10.1% vs 11.0%; OR, 0.91; 95% CI, 0.83-0.99; number needed to treat, 107). A statistically significant reduction in the combined end point of death or MI at 30 days was also observed for enoxaparin in the populations receiving no prerandomization antithrombin therapy (8.0% vs 9.4%; OR, 0.81; 95% CI, 0.70-0.94; number needed to treat, 72). No significant difference was found in blood transfusion (OR, 1.01; 95% CI, 0.89-1.14) or major bleeding (OR, 1.04; 95% CI, 0.83-1.30) at 7 days after randomization in the overall safety population or in the population of patients receiving no prerandomization antithrombin therapy. CONCLUSION: In a systematic overview of approximately 22 000 patients across the spectrum of ACS, enoxaparin is more effective than unfractionated heparin in preventing the combined end point of death or MI.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15238596

Circulation (2004);109:641-6
Differential treatment benefit of platelet glycoprotein IIb/IIIa inhibition with percutaneous coronary intervention versus medical therapy for acute coronary syndromes: exploration of methods
K. S. Pieper*, et al.*
Duke Clinical Research Institute and Department of Medicine, Duke University Medical Center, Durham, NC 27715, USA. karen.pieper@duke.edu
BACKGROUND: Although many believe that platelet glycoprotein IIb/IIIa inhibitors should be used only in acute coronary syndrome patients undergoing percutaneous coronary intervention, supporting data from randomized clinical trials are tenuous. The assumption that these agents are useful only in conjunction with percutaneous coronary intervention is based primarily on inappropriate subgroup analyses performed across the glycoprotein IIb/IIIa inhibitor trials. METHODS AND RESULTS: We describe the problems with these analytical techniques and demonstrate that different approaches to the question can result in opposing answers. CONCLUSIONS: Clinical-practice decisions and practice guidelines should be based on overall trial results and not analyses of post-randomization subgroups.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14769687

Circulation (2004);110:1586-91
Circulating endothelial cell count as a diagnostic marker for non-ST-elevation acute coronary syndromes
J. Quilici*, et al.*
Departement de Cardiologie, Hopital Timone Adultes, Marseille, France.
BACKGROUND: Shedding of endothelial cells from damaged endothelium into the blood occurs in a variety of vascular disorders. The purpose of this study was to evaluate the utility of circulating endothelial cell (CEC) count as a diagnostic marker of non-ST-elevation acute coronary syndromes (ACSs). METHODS AND RESULTS: CEC

counts were determined immediately (H0), 4 hours (H4), and 8 hours (H8) after admission in 60 patients with documented non-ST-elevation ACS and 40 control patients with no evidence of coronary artery disease. A total of 32 patients in the ACS group had elevated CEC counts (>3 cells/mL) in relation to early admission and single-episode chest pain. Patients from the control group had normal CEC counts. The interval between the chest pain episode and elevation was significantly shorter for CEC than troponin I. No correlation was found between the 2 markers. Interestingly, a subgroup of ACS patients with initially normal troponin I levels had high CEC counts, thus allowing early diagnosis in 30% more cases. At H0, the mean area under the receiver operating characteristic curve was significantly higher with the CEC count than with the troponin I level. At H4 and H8, the combined use of CEC and troponin was significantly better as a marker of ACS than CEC alone or troponin I alone. CONCLUSIONS: This study demonstrates that CEC count can be used as an early, specific, independent diagnostic marker for non-ST-elevation ACS. A combined strategy using CEC count and troponin I level could provide an effective diagnostic tool.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15364807

J Am Coll Cardiol (2004);43:972-8
Aspirin dose and six-month outcome after an acute coronary syndrome
M. J. Quinn*, et al.*
St. Vincents University Hospital, Dublin, Ireland.
OBJECTIVES: This study was designed to compare the efficacy of low and intermediate aspirin doses in acute coronary syndromes. BACKGROUND: Little is known of the comparative efficacy of low and intermediate aspirin doses in this setting. METHODS: We compared six-month death, myocardial infarction (MI), and stroke in patients with unstable angina or acute MI discharged while receiving low (<150 mg) or intermediate (> or =150 mg) aspirin therapy in the GUSTO IIb and PURSUIT trials (n = 20,521). We used multivariable analysis and performed a propensity analysis in order to adjust for baseline imbalances between the groups. RESULTS: Aspirin doses <150 mg were prescribed to 29.9% (6,128) of patients. By six months, 6.4% of the patients (1,310 of 20,521) had a primary event, 6.2% of the patients receiving <150 mg and 6.6% of the patients receiving aspirin doses > or =150 mg (hazard ratio [HR] 1.06 [95% confidence interval (CI) 0.94 to 1.19], p = 0.35). After adjusting for baseline imbalances and the propensity score for discharge aspirin dose, there was no effect of aspirin dose on the composite end point at six months (HR 0.92 [95% CI 0.79 to 1.07], p = 0.28). However, the higher aspirin dose was associated with a reduction in six-month MI (HR 0.79 [95% CI 0.64 to 0.98], p = 0.03). The outcome was similar when patients were matched on the basis of the propensity score for aspirin dose (HR for death/MI/stroke 0.94 [95% CI 0.80 to 1.12], p = 0.51), although stroke occurred significantly more frequently among patients receiving the higher aspirin dose (HR 1.74 [95% CI 1.01 to 3.02] p = 0.05) and the effect on MI was no longer apparent. CONCLUSIONS: Although these data are non-randomized, they suggest that the aspirin dose upon discharge may influence the clinical course after unstable angina or acute MI.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15028352

Jama (2004);292:1555-62
Relationship of blood transfusion and clinical outcomes in patients with acute coronary syndromes
S. V. Rao*, et al.*
Duke Clinical Research Institute, Durham, NC 27715, USA. sunil.rao@duke.edu
CONTEXT: It is unclear if blood transfusion in anemic patients with acute coronary syndromes is associated with improved survival. OBJECTIVE: To determine the association between blood transfusion and mortality among patients with acute coronary syndromes who develop bleeding, anemia, or both during their hospital course. DESIGN, SETTING, AND PATIENTS: We analyzed 24,112 enrollees in 3 large international trials of patients with acute coronary syndromes (the GUSTO IIb, PURSUIT, and PARAGON B trials). Patients were grouped according to whether they received a blood transfusion during the hospitalization. The association between transfusion and outcome was assessed using Cox proportional hazards modeling that incorporated transfusion as a time-dependent covariate and the propensity to receive blood, and a landmark analysis. MAIN OUTCOME MEASURE: Thirty-day mortality. RESULTS: Of the patients included, 2401 (10.0%) underwent at least 1 blood transfusion during their hospitalization. Patients who underwent transfusion were older and had more comorbid illness at presentation and also had a significantly higher unadjusted rate of 30-day death (8.00% vs 3.08%; P<.001), myocardial infarction (MI) (25.16% vs 8.16%; P<.001), and death/MI (29.24% vs 10.02%; P<.001) compared with patients who did not undergo transfusion. Using Cox proportional hazards modeling that incorporated transfusion as a time-dependent covariate, transfusion was associated with an increased hazard for 30-day death (adjusted hazard ratio [HR], 3.94; 95% confidence interval [CI], 3.26-4.75) and 30-day death/MI (HR, 2.92; 95% CI, 2.55-3.35). In the landmark analysis that included procedures and bleeding events, transfusion was associated with a trend toward increased mortality. The predicted probability of 30-day death was higher with transfusion at nadir hematocrit values above 25%. CONCLUSIONS: Blood transfusion in the setting of acute coronary syndromes is associated with higher mortality, and this relationship persists after adjustment for other predictive factors and timing of events. Given the limitations of post hoc analysis of clinical trials data, a randomized trial of transfusion strategies is warranted to resolve the disparity in results between our study and other observational studies. We suggest caution regarding the routine use of blood transfusion to maintain arbitrary hematocrit levels in stable patients with ischemic heart disease.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15467057

Am J Cardiol (2004);94:1166-8
Comparison of outcomes in acute coronary syndrome in patients receiving statins within 24 hours of onset versus at later times
F. A. Saab*, et al.*
University of Michigan Cardiovascular Center, Ann Arbor, Michigan 48109-0311, USA.
The clinical benefits of statins in acute coronary syndromes are well established, but the optimal time for administration in this setting has not been well studied. In this study, patients who had acute coronary syndrome and received statins <24 hours of presentation had lower incidences of death, stroke, reinfarction, heart failure, and

pulmonary edema compared with delayed administration. Prompt administration of statins appears to be significantly beneficial in patients who present with an acute coronary syndrome.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15518612

Heart (2004);90:264-9
Prognostic relations between inflammatory markers and mortality in diabetic patients with non-ST elevation acute coronary syndrome
P. L. Sanchez*, et al.*
Cardiac Unit, University Hospital, Salamanca, Spain. pedrolsanchez@hotmail.com
OBJECTIVE: To determine the differences in the inflammatory status between diabetic and non-diabetic patients and to evaluate the usefulness of C reactive protein, fibrinogen, and leucocyte count as predictors of death in diabetic patients with unstable coronary disease. DESIGN: Nested case-control comparisons of the inflammatory status between diabetic and non-diabetic patients. Prospective cohort analysis of C reactive protein concentration, fibrinogen concentration, and leucocyte count as predictors of cardiovascular death in diabetic patients. SETTING: Coronary care unit in Spain. PARTICIPANTS: 83 diabetic patients with non-ST elevation acute coronary syndrome and 83 sex and aged matched patients selected from 361 non-diabetic patients with non-ST elevation acute coronary syndrome. MAIN OUTCOME

Fondaparinux is a synthetic pentasaccharide that selectively inhibits activated clotting factor X. It has been demonstrated as effective in preventing thromboembolic complications in orthopedic surgery. METHODS: Four doses fondaparinux (2.5, 4, 8, or 12 mg once daily) and enoxaparin (1 mg/kg twice daily) were compared, both given for three to seven days, in patients with ACS without persistent ST-segment elevation. RESULTS: The rates of the combined primary end point of death, myocardial infarction, or recurrent ischemia after nine days were 27.9%, 35.9%, 34.7%, 30.3%, and 35.7% in patients allocated to fondaparinux doses of 2.5, 4, 8, and 12 mg and enoxaparin, respectively (p = NS). In the per-protocol analysis (929 patients who received adequate study drug and had adequate ST-segment monitoring), these figures were 30.0%, 43.5%, 41.0%, 34.8%, and 40.2%. Again, no dose response was observed. The lowest event rates were observed in the 2.5-mg fondaparinux group, which had significantly lower rates than the enoxaparin group as well as for 4 and 8 mg fondaparinux in the per-protocol analysis ($p < 0.05$). Bleeding rates were low and not different among the patient groups. No differences were observed in fondaparinux concentrations in patients with or without death, myocardial infarction, recurrent ischemia, or bleeding events. CONCLUSIONS: This dose-finding study revealed no dose response for different fondaparinux doses ranging from 2.5 to 12 mg subcutaneously and suggests that the efficacy and safety of fondaparinux may be similar to that of enoxaparin. Further studies with fondaparinux in ACS might include the lowest dose (2.5 mg) investigated in this study.
http://www.ncbi.nlmi

in-hospital revascularization was associated with lower 6-month death rates (14.0% versus 23.7%, P<0.0001; adjusted hazard ratio, 0.5; 95% CI, 0.37 to 0.68, P<0.0001). CONCLUSIONS: In this observational registry, heart failure was associated with reduced hospital and 6-month survival across all ACS subsets, including patients with normal markers of necrosis. More aggressive treatment of these patients may be warranted to improve prognosis.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=14744970

Eur Heart J (2004);25:2187-94
DECOPI (DEsobstruction COronaire en Post-Infarctus): a randomized multi-centre trial of occluded artery angioplasty after acute myocardial infarction
P. G. Steg*, et al.*
Department of Cardiology, Hopital Bichat, 46 rue Henri Huchard, 75877 Paris Cedex 18, France.
AIM: To determine whether late recanalization of an occluded infarct artery after acute myocardial infarction is beneficial. ME

myocardial infarction. Early angiography followed by revascularization is considered the treatment of choice for moderate- to high-risk patients with ACS. However, despite the integration of newer therapies including stents, glycoprotein IIb/IIIa inhibitors, and thienopyridines, the rate of adverse ischemic events still remains unacceptably high, and the intensive pharmacologic regimens used to stabilize the disrupted atherosclerotic plaque and support angioplasty and surgical revascularization procedures elicit a high rate of bleeding complications. Pilot trials suggest that the thrombin-specific anticoagulant bivalirudin may improve clinical outcomes in ACS. STUDY DESIGN: In the Acute Catheterization and Urgent Intervention Triage strategY (ACUITY) trial, 13,800 patients with moderate- to high-risk ACS are being prospectively randomly assigned at up to 600 centers to unfractionated heparin or enoxaparin + IIb/IIIa inhibition, versus bivalirudin + IIb/IIIa inhibition, versus bivalirudin + provisional IIb/IIIa inhibition. All patients undergo cardiac catheterization within 72 hours, followed by percutaneous or surgical revascularization when appropriate. In a second random assignment, patients assigned to receive IIb/IIIa inhibitors are subrandomized to upstream drug initiation, versus IIb/IIIa inhibitor administration during angioplasty only. The primary study end point is the composite of death, myocardial infarction, unplanned revascularization for ischemia, and major bleeding at 30 days. Clinical follow-up will continue for 1 year. CONCLUSIONS: The ACUITY trial is the largest study yet performed in patients with ACS undergoing an invasive strategy. In addition to evaluating the utility of bivalirudin in ACS, this study will also provide important guidance regarding the necessity for and timing of IIb/IIIa inhibitor administration.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15523305

Am J Cardiol (2004);94:25-9
One-year outcome of patients after acute coronary syndromes (from the Canadian Acute Coronary Syndromes Registry)
A. T. Yan*, et al.*
Terrence Donnelly Heart Centre, Division of Cardiology, St. Michael's Hospital, University of Toronto, Ontario, Canada.
The objective of this study was to determine the management and outcome of fewer selected patients with an acute coronary syndrome during hospitalization and up to 1 year after discharge. The Canadian Acute Coronary Syndromes Registry was a prospective observational study of patients admitted with suspected acute coronary syndromes. Data on demographic and clinical characteristics, in-hospital treatment, and outcomes were recorded. At 1 year, vital status, medication use, recurrent cardiac events, and procedures were determined by telephone contact. Of the 5,312 patients enrolled, 4,627 had a final diagnosis of acute coronary syndrome, with Q-wave myocardial infarction in 27.7%, non-Q-wave myocardial infarction in 33.2%, and unstable angina pectoris in 39.1%. During hospitalization, coronary angiography and revascularization were performed in 39.6% and 20.3% of patients, respectively. The in-hospital mortality rate was 2.4% overall. At discharge, 87.8%, 76.4%, 56.0%, and 54.8% of patients were prescribed aspirin, beta blockers, angiotensin-converting enzyme inhibitors, and lipid-lowering agents, respectively. Unadjusted 1-year mortality rates for hospital survivors were 6.5%, 10%, and 5.4% for those with Q-wave myocardial infarction, non-Q-wave myocardial infarction, and unstable angina pectoris

groups, respectively (p <0.0001). This difference in mortality rate remained significant after adjusting for other prognosticators, whereas the use of coronary angiography and revascularization after discharge was similar across patients. At 1 year, fewer patients were maintained on aspirin and beta blockers, whereas the use of lipid-lowering therapy increased (all p <0.0001). Despite similar rates of coronary angiography and revascularization after discharge, patients with non-Q-wave myocardial infarction had worse outcomes at 1 year. Moreover, there was a significant opportunity to enhance the discharge and long-term use of evidence-based secondary prevention therapies.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15219503