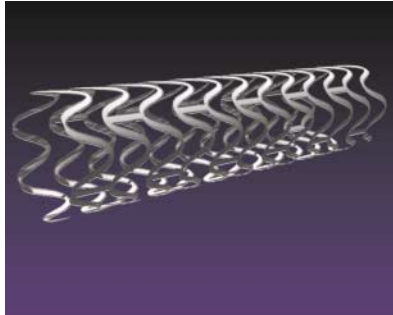




This Week in the Journal

March 28, 2002



Angioplasty versus Stenting in Acute Myocardial Infarction

Primary coronary angioplasty has become the preferred method of reperfusion in patients with acute myocardial infarction. Still, the procedure is limited by the substantial rates of restenosis and reocclusion. This trial compared angioplasty with stenting, with or without treatment with the glycoprotein IIb/IIIa inhibitor abciximab. Stenting (alone or with abciximab) was superior to standard balloon angioplasty (alone or with abciximab) in reducing the need for repeated revascularization.

This study will set a new standard for reperfusion therapy in patients with acute myocardial infarction. At experienced centers, coronary stenting, with or without abciximab, should be the preferred approach to reperfusion.

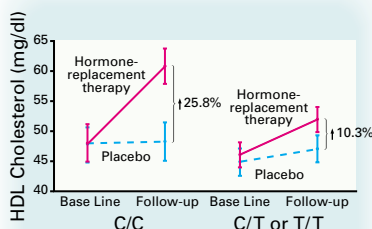
see page 957 (Perspective, page 954)

Estrogen-Receptor Polymorphisms and Effects of Estrogen Replacement on High-Density Lipoprotein Cholesterol

Sequence variants in the estrogen receptor α ($ER-\alpha$) gene may be important in individual responses to hormone-replacement therapy. $ER-\alpha$ polymorphisms were characterized in 309 women enrolled in the Estrogen Replacement and Atherosclerosis trial, and the association between these polymorphisms and the response of high-density lipoprotein (HDL) cholesterol to hormone-replacement therapy was examined. Women with DNA sequence variants in intron 1 had a heightened response of HDL cholesterol during hormone-replacement therapy, as compared with women with other genotypes.

Although the specific effects of these genotypes on estrogen-receptor function is unknown, the data point to the possibility of using genetic screening to individualize decision making about hormone-replacement therapy.

see page 967 (editorial, page 1017)



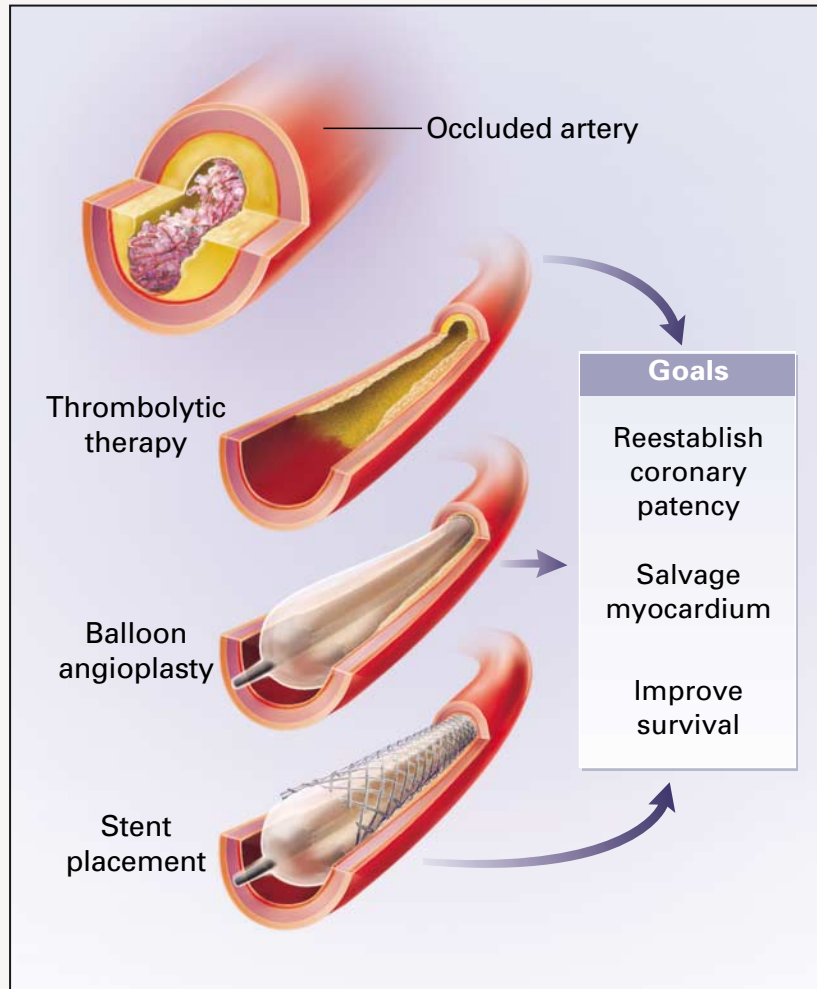
PERSPECTIVE

Reperfusion Therapy in Acute Myocardial Infarction

Coronary arterial occlusion due to thrombosis is the cause of most cases of myocardial infarction accompanied by ST-segment elevation. Rapid restoration of blood flow to jeopardized myocardium limits necrosis and reduces mortality. This can be accomplished medically, with a thrombolytic agent, or mechanically, with so-called primary balloon angioplasty or stenting (see figure). Each method has its advantages and limitations.

Thrombolytic therapy is widely available and effective, but its use is sometimes associated with bleeding complications. In 10 to 15 percent of patients who receive a thrombolytic agent, clot lysis is not achieved. Only half the patients in whom antegrade coronary flow is restored have normal flow, and in a small number of these patients, occlusion recurs before discharge from the hospital. To address these limitations, newer thrombolytic agents have been developed that result in higher rates of early coronary arterial patency and lower rates of bleeding complications. In addition, reduced-dose thrombolytic therapy in combination with the administration of a potent antiplatelet agent (e.g., a glycoprotein IIb/IIIa inhibitor) restores antegrade flow as effectively as full-dose thrombolytic therapy but is associated with lower rates of reocclusion and reinfarction.

Patients with acute myocardial infarction who are treated with primary balloon angioplasty are more likely than those given thrombolytic therapy to have a patent infarct-



Methods of Reperfusion in Patients with Acute Myocardial Infarction.

related artery and normal antegrade flow. When performed expeditiously and expertly, primary balloon angioplasty is preferable to thrombolysis, particularly in patients with a contraindication to thrombolysis, older patients (those over the age of 70 years), and younger patients with cardiogenic shock. The concomitant administration of a glycoprotein IIb/IIIa inhibitor reduces the incidence of early complications associated with primary balloon angioplasty. However, this approach does not reduce the risk that restenosis with recurrent ischemia will

develop in a period of weeks to months after treatment, necessitating another revascularization procedure.

In patients with angina, the implantation of a stent to act as a scaffold in the diseased coronary artery results in a lower risk of restenosis than that associated with balloon angioplasty alone. In this issue of the *Journal* (see pages 957–966), Stone et al. report similar benefits when stents are used in patients with acute myocardial infarction. As compared with primary balloon angioplasty, the placement of one or

“The optimal duration of prophylaxis after surgery for cancer has not been clearly defined.”

Duration of Enoxaparin Thromboprophylaxis after Surgery for Cancer

How long should patients who undergo abdominal surgery for cancer receive thromboprophylaxis? To investigate this question, 332 patients received enoxaparin for about eight days postoperatively and were then randomly assigned to receive either placebo or enoxaparin for another three weeks. Venography was performed in all patients at the end of treatment. Venous thromboembolism occurred in 12.0 percent of the placebo group and 4.8 percent of the enoxaparin group.

Cancer is a leading cause of thrombophilia, and surgery for cancer further increases the risk of venous thrombosis. The evidence from this well-designed study supports the use of thromboprophylaxis for at least four weeks after abdominal or pelvic surgery for cancer.

see page 975

more stents in patients with acute myocardial infarction does not reduce the likelihood of early adverse events (death, reinfarction, or the need for urgent revascularization), even if a glycoprotein IIb/IIIa inhibitor is given concomitantly, but it does diminish the likelihood that restenosis will develop within the next six months, necessitating another revascularization procedure.

With the choice of newer thrombolytic agents, better adjunctive therapy, improved angioplasty techniques, and more versatile stents, what should be the standard reperfusion therapy for patients with myocardial infarction and ST-segment elevation? In our opinion, it should be the one that can be administered most quickly and expertly. If a catheterization facility that has experience with primary balloon angioplasty or stenting is not available, thrombolytic therapy should be initiated without delay. If a catheterization facility is available, the benefits of primary balloon angioplasty

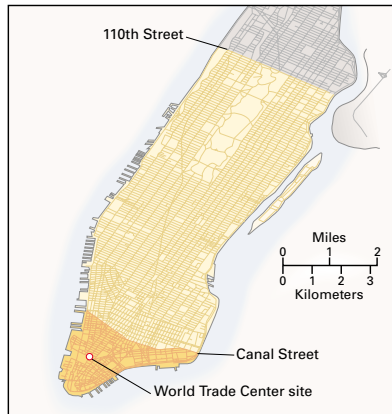
in conjunction with the administration of a glycoprotein IIb/IIIa inhibitor are similar to those of stent placement in the short term (30 days). Although stenting reduces the rate of restenosis and the need for subsequent revascularization, this advantage is relatively small (i.e., an absolute reduction in the rate of revascularization of only 6 percent), as Stone et al. report. Whether stenting is cost effective or is the most effective strategy in patients with small arteries (less than 2.5 mm in diameter), bypass grafts, or cardiogenic shock has yet to be determined.

Recently, investigators have begun to apply pharmacologic agents that inhibit the neointimal proliferative response of restenosis directly to stents or to biocompatible polymers that are used to coat stents. The antiproliferative drug is released from the implanted stent over a period of days, weeks, or months, so that the stent acts as a local, sustained-release reservoir for the anti-

proliferative medication. Pilot studies have shown that the risk of restenosis is virtually eliminated in patients with stable angina who receive stents coated with an immunosuppressive drug (sirolimus or paclitaxel). Although these preliminary results are exciting, they must be confirmed in studies with larger numbers of patients, and additional studies will be necessary to identify the best drug (or drugs) and biocompatible polymer (or polymers). If the main effect of stent placement in patients with acute myocardial infarction is to prevent restenosis and if the promising preliminary results with drug-eluting stents are confirmed, the use of drug-eluting stents will be the preferred strategy in such patients.

RICHARD A. LANGE, M.D.
L. DAVID HILLIS, M.D.

University of Texas Southwestern
Medical Center
Dallas, TX 75390

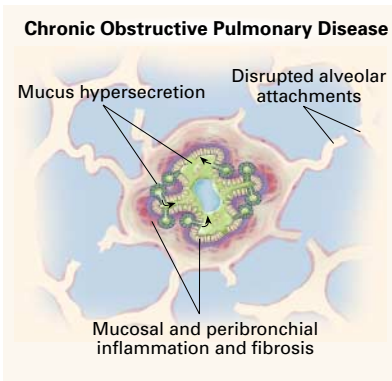


Special Article: Psychological Sequelae of the September 11 Terrorist Attacks

This telephone survey of Manhattan residents was performed five to nine weeks after the terrorist attacks on the World Trade Center. The prevalence of acute post-traumatic stress disorder (PTSD) was 7.5 percent, and the prevalence of depression was 9.7 percent. Among residents living close to the World Trade Center, the prevalence of PTSD was 20.0 percent.

The prevalences reported in this survey are approximately twice as high as the expected values for PTSD and depression in the general population. The burden of these psychological sequelae was substantial in the early aftermath of the World Trade Center attacks.

see page 982



Clinical Practice: Acute Exacerbations of Chronic Obstructive Pulmonary Disease

A 68-year-old former heavy smoker with a history of chronic obstructive pulmonary disease presents to the emergency room with a two-day history of worsened dyspnea and increased purulence and volume of phlegm. Chest radiography shows hyperinflation and no acute infiltrates. Measurement of arterial blood gases while the patient is breathing ambient air shows acute respiratory acidosis. How should this patient be treated?

This article reviews the short-term management of exacerbations of chronic obstructive pulmonary disease.

see page 988



Medical Progress: Immune Thrombocytopenic Purpura

Immune thrombocytopenic purpura, which may lead to bleeding, is typically caused by antibodies directed against the platelet glycoprotein IIb/IIIa complex. Since the management of the disorder is different for children and adults, the authors of this up-to-date review provide separate sections on the two age groups. Along with advances in management, they also discuss the current understanding of pathophysiology and, in particular, the way in which autoantibodies against platelets are generated.

see page 995

“Many family members have found that the benefits of being present outweigh the harm.”

Sounding Board: Should Family Members Be Present during Cardiopulmonary Resuscitation?

The author acknowledges that the presence of family members during resuscitation procedures is not always desirable or possible. However, she endorses programs at hospitals that would allow family members to be present according to their wishes. She notes that the attitudes of physicians and nurses are the greatest barriers to establishing such programs.

see page 1019