

UNSTABLE ANGINA: DIAGNOSIS AND MANAGEMENT Guideline Overview

Agency for Health Care Policy and Research
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—The Editor

BACKGROUND

Unstable angina, a type of coronary artery disease, causes a significant amount of disability and death in the United States every year. In 1991 alone, it is estimated that there were 570 000 hospitalizations for this condition, resulting in 3.1 million hospital days.

Unstable angina is defined as a transitory episode of severe and prolonged discomfort that occurs as 1) nocturnal or rest angina (ie, angina not caused by exertion); 2) new anginal pain that is extremely severe and debilitating occurring in patients who have not had it before; and 3) pain or discomfort previously diagnosed as angina that has become significantly more

frequent in occurrence, longer in duration, or occurs at a lower threshold of activity than before.

Angina is caused by a lack of oxygen flow to the heart muscle because of blockages in the coronary arteries. The symptoms of angina include pain or discomfort in the chest, arms, back, neck, or jaw. It is often described as tightness or a crushing sensation. In some cases it can be described as a stabbing pain or even a feeling of numbness. Angina is sometimes mistaken for indigestion.

Patients with coronary artery disease, including those with chronic stable angina and those who have suffered a myocardial infarction (heart attack), commonly cycle through phases of unstable angina. In some people, this pain may be an early warning that they are at risk for a myocardial infarction. Angina and especially unstable angina are potentially serious conditions and should be treated by a physician.

ADDRESSING THE PROBLEM

In 1992, the Agency for Health Care Policy and Research (AHCPR) and the National Heart, Lung, and Blood Institute (NHLBI), both components of the Public Health Service, provided support to Duke University Medical Center for development of a clinical practice guideline on unstable angina. Working with Duke University, AHCPR and NHLBI convened a 19-member panel of private-sector experts to develop the guideline. This topic was selected for the following reasons:

- Unstable angina, as a type of heart disease, is prevalent in the US population.
- Patients with unstable angina very often are admitted to hospitals, resulting in a large number of hospital days and associated costs.

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Unstable Angina Guideline Panel: Eugene Braunwald, MD, Harvard Medical School; Leslie Brown, JD, Division of Adult Health, Raleigh, NC; Melvin Cheitlin, MD, San Francisco General Hospital; Craig Concannon, MD, Beloit Medical Center, Beloit, KS; Marie Cowan, RN, PhD, University of Washington School of Medicine; Conan Edwards, PhD, American Association of Retired Persons; Valentine Fuster, MD, Mt Sinai Medical Center, New York, NY; Cindy Grines, MD, William Beaumont Hospital, Royal Oak, MI; Lee Goldman, MD, Harvard Medical School; Lee Albert Green, MD, Ann Arbor, MI; Bruce Lytle, MD, Cleveland Clinic; Kathy McCauley, RN, PhD, University of Pennsylvania; Alvin Mushlin, MD, University of Rochester; Greg Rose, MD, Wake Heart Associates, Raleigh, NC; Earl Smith, MD, Erlanger Medical Center, Chattanooga, TN; Julie Swain, MD, University of Nevada School of Medicine; Eric Topol, MD, The Cleveland Clinic Foundation; James Willerson, MD, University of Texas Medical School. Project Directors: Robert Jones, MD, Duke University Medical Center; Michael J. Horan, MD, National Heart, Lung, and Blood Institute.

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- Appropriate diagnosis and management of unstable angina may reduce the number of people at risk for myocardial infarction and improve the quality of life for people with coronary artery disease.

The panel had several major objectives in developing the guideline:

- Review existing evidence and develop recommendations for diagnosing and managing unstable angina that could result in improvements in the ways in which health care providers diagnose and treat unstable angina.
- Educate health professionals, consumers, and their families about the nature and treatment of unstable angina.
- Highlight areas in which the available scientific evidence is sufficient to draw conclusions about the best way to diagnose and treat unstable angina, as well as point out areas in which further research is necessary.

FINDINGS

The panel's major findings were that:

- Patients who are suspected of having unstable angina but are at low risk of further adverse events can, in many cases, be discharged home after an initial evaluation; further evaluation of these patients generally should be conducted within 72 hours of the initial evaluation.
- Patients considered to have symptoms of unstable angina who are judged to be at intermediate or high risk for adverse events should be admitted to a hospital and receive intensive medical management.
- Intravenous thrombolytic therapy is not indicated for patients with unstable angina.
- Noninvasive functional or stress testing is a useful tool to assess the adequacy of current medications, guide decisions on further evaluation and management, and assess the patient's long-term prognosis. Noninvasive testing can be used for low-risk patients who are managed as outpatients and for patients at intermediate or high risk (if immediate cardiac catheterization is not indicated) once they have been stabilized for at least 48 hours.
- Those patients judged to be at high risk for cardiac complications or death, based on their clinical course or the results of noninvasive testing, are appropriate candidates for coronary angiography (also called cardiac catheterization), which allows the physician to make x-ray photographs of the coronary arteries.
- Coronary artery bypass surgery should be recom-

mended for almost all patients with left main disease and for many patients with three-vessel disease, especially those with left ventricular dysfunction.

- When patients are discharged from the hospital, their care plan should include continued monitoring of symptoms, appropriate drug therapy and risk factor modification, and counseling.

RECOMMENDATIONS

The panel's recommendations focus on seven major phases of care for patients with unstable angina.

Initial Evaluation and Treatment

Because the diagnosis of unstable angina can be difficult, the initial evaluation of a patient with ongoing pain should take place in a medical facility that has the ability to perform an electrocardiogram and provide advanced cardiac life support, intravenous drug therapy, and radiographic examination. The objective of the initial evaluation is to assess the short-term risk for death or other major complications and begin the diagnostic process. This initial evaluation should be completed within one hour of the patient's arrival. All patients suspected of having unstable angina should receive aspirin unless they have an allergy or other contraindications. Patients with ongoing pain or abnormal electrocardiograms should also receive nitroglycerin, beta blockers, and IV heparin. Patients with unstable angina and high-risk features with persistent abnormalities on their electrocardiograms or unstable blood pressure should be admitted to an intensive or cardiac care unit. Patients at intermediate risk should also be admitted to an intensive care unit, intermediate care unit, or other cardiac care environment. Low-risk patients without other complications may be discharged home and further evaluated and managed as outpatients.

Outpatient Care

Patients judged to be at low risk when first seen should have a thorough evaluation within 72 hours if a definitive evaluation cannot be completed at the time of initial presentation. Goals of this evaluation are further assessment of the cause of symptoms, evaluation of the risk for future adverse cardiac events, and assurance of adequate symptom relief. Appropriate counseling for the patient is a key element of this phase of patient management.

Intensive Medical Management

Patients at high or intermediate risk of cardiac events, who have persistent symptoms of unstable angina,

should receive intensive medical management. This involves careful monitoring and the use of aspirin, heparin, nitroglycerin, and beta blockers. Calcium channel blockers are not recommended as a first-line therapy unless the patient is unresponsive to beta blockers and nitroglycerin or they have variant angina. The goals of this care are to relieve the patient's pain and prevent further progression to heart attack or death. Ideally, medical management should be given at least 24 hours to stabilize the patient before moving to more invasive therapies, such as cardiac catheterization or myocardial revascularization (ie, coronary artery bypass surgery or angioplasty). However, some patients will require emergency cardiac catheterization and revascularization before that time.

Progression to Nonintensive Medical Management

High- and intermediate-risk patients whose symptoms have been controlled for 24 hours may be moved to nonintensive medical management. During this phase, the emphasis shifts from stabilizing the patient to designing a maintenance medical regimen that will minimize recurrence of unstable angina. The patient is encouraged to slowly resume his or her normal activities in preparation for discharge home.

Noninvasive Testing

Noninvasive functional or stress testing is a useful tool to assess the adequacy of the patient's current medications, guide decisions on further evaluation and management, and assess long-term prognosis. Noninvasive testing may be used for low-risk patients who are managed as outpatients and for patients at intermediate or high risk (if immediate cardiac catheterization is not indicated) once they have been stabilized for at least 48 hours. In high-risk patients, for whom cardiac catheterization is indicated, diagnostic stress testing will not provide any additional information.

Cardiac Catheterization and Myocardial Revascularization

The goal of cardiac catheterization in unstable angina patients is to provide information on the patient's risk of further cardiac events and help plan for revascularization by mapping the location and extent of blockage in the coronary arteries. The procedure also helps in choosing whether medical or invasive therapy is most appropriate for the patient. The goals of myocardial revascularization—either angioplasty or coronary artery bypass grafting—are to enhance the patient's

prognosis, relieve symptoms, and improve functional capacity in patients with obstructive coronary artery disease. In the most severe forms of coronary artery disease, coronary artery bypass grafting provides the best long-term survival results. As with all therapies, the patient's characteristics and his or her individual preferences should be considered in any decision about cardiac catheterization or myocardial revascularization.

Hospital Discharge and Postdischarge Care

The period before a patient is discharged from the hospital provides an opportunity to prepare him or her for normal at-home activities, to the extent possible. Continued long-term management of the unstable angina patient includes aspirin therapy, an exercise test at 6 to 8 weeks postdischarge, and possible additional evaluation and treatment.

GUIDELINE DEVELOPMENT

The Agency for Health Care Policy and Research and the National Heart, Lung, and Blood Institute provided support to Duke University Medical Center for development of a clinical practice guideline on unstable angina. A 19-member, private-sector, interdisciplinary panel was convened, which included physicians, nurses, a public health representative, and a consumer representative. An exhaustive literature review was conducted to survey the scientific and clinical knowledge related to unstable angina. Of more than 5000 articles reviewed, nearly 2500 were selected for use in developing the guideline. The results of the literature review were used to develop a draft guideline. Drafts were submitted to 75 experts in the field to ensure accuracy and thoroughness of the literature cited and the ability of the literature to support the guideline's recommendations. A group of 44 clinicians, representative of the users for which the guideline was developed, also reviewed the guideline for its applicability in the clinical setting. Comments from these two groups were used in preparing the final guideline documents.

FOR FURTHER INFORMATION

The guideline is available free of charge in several forms:

- The *Clinical Practice Guideline*, intended for health care providers, contains a discussion of unstable angina and the panel's findings and recommendations with supporting evidence and references. It also includes a series of tables and charts summarizing the approach to diagnostic techniques and treatment objectives.

Key Points About Unstable Angina

For Health Care Providers

- Diagnosis of unstable angina is contingent on simultaneous assessments of the likelihood of coronary artery disease and the patient's risk for further cardiac events.
- Patients with unstable angina who are at low risk of other cardiac events can be managed as outpatients after a thorough evaluation which should take place no later than 72 hours after initial presentation.
- Patients with unstable angina who are at intermediate or high risk of cardiac events should be admitted to a hospital and receive intensive medical management.
- The initial treatment of patients at intermediate and high risk should take place in the emergency department with the administration of aspirin and intravenous heparin. Medical therapy should not wait until the patient is admitted to the hospital.
- Medical therapy should include aspirin, heparin, nitroglycerin, and beta blockers. Calcium channel blockers are not recommended as a first-line therapy unless the patient is unresponsive to beta blockers and nitroglycerin or has variant angina.
- Intravenous thrombolytic therapy is not indicated for patients with unstable angina.
- Assessment of prognosis by noninvasive testing often aids selection of appropriate therapy.
- Coronary angiography is appropriate for patients judged to be at high risk for cardiac complications or death based on their clinical course or results of noninvasive testing.
- Coronary artery bypass surgery should be recommended for almost all patients with left main disease and many patients with three-vessel disease, especially those with left ventricular dysfunction.
- The discharge care plan should include continued monitoring of symptoms; appropriate drug therapy, including aspirin; risk factor modification; and counseling.
- Providers should help patients with coronary artery disease understand their condition, what additional warning signs to watch for, and how to take their medications.
- Clinicians should learn more about unstable angina: read *Clinical Practice Guideline Number 10, Unstable Angina: Diagnosis and Management* and use its companion, *Quick Reference Guide*; give the *Patient and Family Guide* to patients so they can learn more about unstable angina and its management.

For Patients

- Unstable angina can be serious and requires immediate medical attention. However, for most patients, it is a treatable condition.
- Know when to go to the hospital. If you do have to go to the hospital, call an ambulance. If ambulance service is not available where you live, have a friend or family member drive you to the hospital. Do not drive yourself to the hospital.
- If you have unstable angina, it is important to learn more about your condition. Talk with your doctor, nurse, or other health care provider. Make a list of questions to help you remember what you want to ask.
- Order the consumer booklet, *Managing Unstable Angina*, which contains information about unstable angina and its treatments. A free copy is available from the US Government's Agency for Health Care Policy and Research.
- The Agency for Health Care Policy and Research and the National Heart, Lung, and Blood Institute also have a *Clinical Practice Guideline* and a *Quick Reference Guide* on unstable angina for your health care provider.

● The *Quick Reference Guide*, also intended for health care providers, is a brief summary of and companion volume to the *Clinical Practice Guideline*. It provides highlights of patient management and presents the tables and charts.

● The *Patient and Family Guide* is a brochure for consumers, published in English and Spanish, that

describes the condition, outlines the main evaluation and treatment options, and provides guidance on working effectively with health care providers.

To order these publications, call toll free (800) 358-9295, or write: Unstable Angina Guideline, AHCPR Publications Clearinghouse, PO Box 8547, Silver Spring, MD 20907.