



Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for chronic chest pain--suspected cardiac origin.

BIBLIOGRAPHIC SOURCE(S)

Higgins CB, Bettmann MA, Boxt LM, Gomes AS, Grollman J, Henkin RE, Kelley MJ, Needleman L, Pagan-Marin H, Polak JF, Stanford W. Chronic chest pain--suspected cardiac origin. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun; 215(Suppl): 29-34. [23 references]

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SCOPE

DISEASE/CONDITION(S)

Chronic chest pain of suspected cardiac origin

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Cardiology
Emergency Medicine
Family Practice
Geriatrics
Internal Medicine
Radiology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for chronic chest pain of suspected cardiac origin

TARGET POPULATION

Patients with chronic chest pain of suspected cardiac origin

INTERVENTIONS AND PRACTICES CONSIDERED

1. Chest films (posterior/anterior and lateral)
2. Stress myocardial perfusion scan
3. Coronary angiography
4. Left ventriculography
5. Stress transthoracic echocardiography
6. Radionuclide ventriculogram with stress
7. Transthoracic echocardiography (resting)
8. Electron beam tomography
9. Upper gastrointestinal series and esophagram
10. Positron emission tomography
11. Gall bladder ultrasound
12. Magnetic resonance imaging
13. Conventional computed tomography
14. Biliary imaging

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in differential diagnosis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, primarily using the National Library of Medicine's MEDLINE database. The developer identified and collected the major applicable articles

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed to reach agreement in the formulation of the Appropriateness Criteria. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty (80) percent agreement is considered a consensus. If consensus cannot be reached by this method, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Chronic Chest Pain: Suspected Cardiac Origin

Radiologic Exam Procedure	Appropriateness Rating	Comments
Chest Film (Posterior/Anterior and Lateral)	9	Needed for excluding noncardiac cause of chest pain.
Stress Myocardial Perfusion Scan	8	Generally regarded as the most effective technique for demonstrating myocardial ischemia.
Coronary Angiography	8	The definitive test for establishing the diagnosis and directing treatment.
Left Ventriculography	8	This test is usually done with coronary angiography. It is not always essential and can be replaced with noninvasive studies.
Stress Transthoracic Echocardiography	6	Can be used to demonstrate regional left ventricular dysfunction due to ischemia. Currently proposed as a substitute for nuclear perfusion studies.

Radionuclide Ventriculogram with Stress	6	Provides information similar to myocardial perfusion imaging but is generally considered to have lower diagnostic accuracy.
Transthoracic Echocardiography (resting)	5	Can be substituted for left ventriculography for the evaluation of left ventricular function.
Electron Beam Tomography	5	Detects the presence of coronary calcification as a risk factor for coronary arterial disease. Its use is controversial.
Upper Gastrointestinal Series and Esophagram	4	Can be used to define a noncardiac cause of chest pain. Infrequently indicated.
Positron Emission Tomography	4	Need to establish myocardial viability in planning therapeutic options. Not widely available and very expensive.
Gall Bladder Ultrasound	3	Can be used to define a noncardiac cause. Infrequently used.
Magnetic Resonance Imaging	3	Infrequently indicated at this time.
Conventional Computed Tomography	2	Rarely indicated.
Biliary Imaging	2	Rarely indicated.
<u>Appropriateness Criteria Scale</u>		
1 2 3 4 5 6 7 8 9		
1=Least appropriate 9=Most appropriate		

Summary

The defined approach to evaluation of chronic chest pain of probable cardiac origin is supported by a substantial body of literature. If the history is entirely typical and the pain responds to moderate medical therapy, no imaging study may be necessary. Otherwise, stress nuclear perfusion imaging is used to establish the diagnosis and assess the severity of myocardial ischemia. Stress radionuclide ventriculography may be employed by some for the same purpose. Based on the results of nuclear perfusion and/or clinical response to medical therapy, coronary

angiography with or without cardiac catheterization and/or left ventriculography is the next imaging procedure. The substitution of stress echocardiography for nuclear studies as the first-line noninvasive method is not justified by current knowledge, but this outlook could change based on results of comparative studies and comparative cost analysis.

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate selection of initial radiologic exam procedures to aid in differential diagnosis of chronic chest pain, suspected cardiac origin

Subgroups Most Likely to Benefit:

Patients with chronic myocardial ischemia

POTENTIAL HARMS

None identified

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been

considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1995 (revised 1999)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria™

GUIDELINE COMMITTEE

ACR Appropriateness Criteria™ Committee, Expert Panel on Cardiovascular Imaging.

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Panel Members: Charles B. Higgins, MD; Michael A. Bettmann, MD; Lawrence M. Buxt, MD; Antoinette S. Gomes, MD; Julius Grollman, MD; Robert E. Henkin, MD; Michael J. Kelley, MD; Laurence Needleman, MD; Heriberto Pagan-Marin, MD; Joseph F. Polak, MD, MPH; William Stanford, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It is a revision of a previously issued version (Appropriateness criteria for chronic chest pain-suspected cardiac origin. Reston [VA]: American College of Radiology [ACR]; 1995. 6 p. [ACR Appropriateness Criteria™]).

The ACR Appropriateness Criteria™ are reviewed after five years, if not sooner, depending upon introduction of new and highly significant scientific evidence. The next review date for this topic is 2004.

GUIDELINE AVAILABILITY

Electronic copies: Available (in PDF format) from the [American College of Radiology \(ACR\) Web site](#).

Print copies: Available from ACR, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on February 20, 2001. The information was verified by the guideline developer on March 14, 2001.

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