Complete Summary

GUIDELINE TITLE

Unstable angina pectoris.

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Unstable angina pectoris. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2006 Mar 15 [Various].

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s)/intervention(s) for which important revised regulatory and/or warning information has been released.

- February 28, 2008, Heparin Sodium Injection: The U.S. Food and Drug Administration (FDA) informed the public that Baxter Healthcare Corporation has voluntarily recalled all of their multi-dose and single-use vials of heparin sodium for injection and their heparin lock flush solutions. Alternate heparin manufacturers are expected to be able to increase heparin production sufficiently to supply the U.S. market. There have been reports of serious adverse events including allergic or hypersensitivity-type reactions, with symptoms of oral swelling, nausea, vomiting, sweating, shortness of breath, and cases of severe hypotension.
- June 8, 2007, Troponin-I Immunoassay: Class I Recall of all lots of the Architect Stat Troponin-I Immunoassay. The assay may report falsely elevated or falsely decreased results at and near a low level, which may impact patient treatment.

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SCOPE

DISEASE/CONDITION(S)

Unstable angina pectoris

GUIDELINE CATEGORY

Diagnosis
Evaluation
Risk Assessment
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Health Care Providers
Physicians

GUIDELINE OBJECTIVE(S)

Evidence-Based Medicine Guidelines collects, summarizes, and updates the core clinical knowledge essential in general practice. The guidelines also describe the scientific evidence underlying the given recommendations.

TARGET POPULATION

Patients with suspected or confirmed unstable angina

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Electrocardiogram
2. Assessment of signs and symptoms
3. Measurement of myocardial markers, such as troponin T or troponin I and creatine kinase isoenzyme MB mass (CK-MBm)

Treatment

1. Aspirin
2. Clopidogrel in addition to aspirin
3. Nitrate
4. Beta-blocker (metoprolol)
5. Low-molecular-weight (LMW) heparins (such as dalteparin) simultaneously with aspirin
6. Glycoprotein IIb/IIIa inhibitors in selected patients
7. Cardiac monitoring
8. Angiography
9. Revascularization (clopidogrel and intravenous glycoprotein IIb/IIIa (GP IIb/IIIa) inhibitor in addition to aspirin and low-molecular-weight heparin while waiting for the procedure)
10. Thrombolytic therapy
11. Percutaneous transluminal angioplasty (PTA) with insertion of a stent followed by clopidogrel in combination with aspirin
12. Elimination of risk factors

Evaluation

1. Electrocardiogram
2. Measurement of myocardial markers, such as troponin T or troponin I and creatine kinase isoenzyme MB mass
3. Exercise testing

MAJOR OUTCOMES CONSIDERED

- Mortality
- Incidence of myocardial infarction
- Efficacy of treatment for angina in reducing mortality and incidence of myocardial infarction
- Episodes of chest pain and severity of chest pain (i.e., need for sublingual nitroglycerin)
- Incidence of ischaemic events/recurrent angina
- Bleeding complications
- Need for urgent revascularization
- Sensitivity and specificity of troponin I and T for predicting adverse cardiac events in unstable angina pectoris

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence reviewed was collected from the Cochrane database of systematic reviews and the database of abstracts of reviews of effectiveness (DARE). In

addition, the Cochrane Library and medical journals were searched specifically for original publications.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
B. Moderate research-based evidence. At least one relevant, high-quality study or multiple adequate studies.
C. Limited research-based evidence. At least one adequate scientific study.
D. No research-based evidence. Expert panel evaluation of other information.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

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

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary. The recommendations that follow are based on the previous version of the guideline.

The levels of evidence [A-D] supporting the recommendations are defined at the end of the "Major Recommendations" field.

Objective

- To recognize ischaemic chest pain that may be prodromal to acute infarction (acute coronary syndrome [ACS]) and to accompany the patient to a cardiac monitoring unit for active drug treatment or rapid revascularization (Wallentin et al., 2000) [**B**].
- To assess the patient's risk factors for coronary heart disease, and to refer high risk patients readily to a hospital for coronary angiography. The only symptom of ischaemia may be a general deterioration in patient's physical condition, or dyspnoea, without chest pain.

Definition

- Symptom complexes caused by a sudden narrowing or obstruction of a coronary artery are called acute coronary syndromes (ACS). These include
    - Unstable angina pectoris
    - Myocardial infarction without ST-elevation
    - Myocardial infarction with ST-elevation (See the Finnish Medical Society Duodecim guideline "Thrombolytic therapy and balloon angioplasty in acute ST elevation myocardial infarction [STEMI]")
- The most common cause of an acute coronary syndrome is a tear in an atheroma plaque and a thrombus that is formed on it.

Risk Groups and Clinical Signs

- The presence of a marker (cardiac troponin T and I, creatine kinase isoenzyme MB mass [CK-MBm]) is the single most important predictor for future coronary events.
    - Marker-positive patients are referred to angiography and revascularization.
    - Marker-negatives are referred to exercise tolerance test.
- Unstable angina pectoris (UAP) is a heterogeneous group of diseases covering the range between stable angina pectoris (AP) and acute myocardial infarction (AMI).
- New (sudden) AP in a high-risk patient is always a serious condition.
- An aggravation in stable AP to unstable AP always necessitates a reassessment of risk and often a change in the line of treatment.

- There may not always be pain; rather, the main symptom is a decrease in exercise tolerance (sudden decrease in physical fitness) or acute left ventricle failure.
- In the electrocardiogram (ECG) an ST segment depression precedes the pain. Symptomless (silent) ischaemia in a patient at risk is a significant finding. Ischaemia may not always be visible in a resting ECG. An ECG registered while the patient has pain is invariably valuable.
- The border between UAP and T-wave infarction (non-Q infarction) is shifting. For example, very proximal occlusion in the left anterior descending artery (LAD) causes a symmetric T inversion in chest leads. Elevation of myocardial markers indicates that the patient has an infarction.

Treatment

- Treatment is normally carried out in a cardiac monitoring unit.
- Pharmacological treatment should be started in the first point of care.
- The mildest form (recent angina) can be treated in a health care centre ward under careful monitoring. Remember the risk of myocardial infarction (MI). The risk diminishes with time as the angina stabilizes.

Anti-ischaemic and Antithrombotic Treatment

- All patients with suspected unstable angina (no changes in ECG or myocardial markers)
    - Aspirin 100 milligrams (mg) per day continuously, unless there are contraindications (Natarajan, 2002; "Collaborative overview," 1994) [**A**].
    - Clopidogrel together with aspirin: first a loading dose of 300 mg, then 75 mg per day.
    - Nitrate (Natarajan, 2000) [**D**] intravenously (See the Finnish Medical Society Duodecim guideline "Nitrate infusion in angina pectoris and myocardial infarction") or orally according to the situation.
    - Beta-blocker (Natarajan, 2002) [**C**] (metoprolol). Heart rate should be 50 to 60 beats per minute and systolic pressure below 150 mmHg.
    - Low-molecular-weight (LMW) heparin (Zed, Tisdale, & Borzak, 1999; Nicholson, Milne, & Stein, 2000; The Health Technology Assessment Database, HTA-20000891, 2001) [**A**] (e.g., dalteparin 100-120 IU/kg x 2 daily for one week) is given simultaneously with aspirin. The treatment can be continued with half the dose for about 1 month. Unstable AP patients with an elevated troponin T concentration derive the greatest benefit from the treatment (LMW heparin + aspirin). Pharmacotherapy and invasive treatment do not exclude one another.
    - Glycoprotein IIb/IIIa inhibitors for selected high risk patient groups in hospital care
    - There is no benefit from fibrinolytic therapy.
- High-risk patients: Unstable angina and ischaemia on ECG or elevated myocardial markers (Olatidoye et al., 1998) [**A**], acute left ventricle failure (lung oedema, mitral regurgitation, hypotension)
    - Immediate angiography and revascularization. While waiting for the procedure, the thrombosis should be stabilized with clopidogrel (an initial dose of 300 mg before transportation, thereafter 75 mg daily) and an intravenous (i.v.) glycoprotein IIb/IIIa (GP IIb/IIIa) inhibitor

(Natarajan, 2002) [**B**] in addition to aspirin and LMW heparin . (Fibrinolytic treatment has no effect on a vessel obstruction caused by aggregated platelets.)

- Thrombolytic therapy or immediate percutaneous transluminal angioplasty (PTA) (during which a stent can be inserted) is indicated if ECG reveals a transmural injury. (See article on revascularization: Evidence-Based Medicine guideline, "Coronary heart disease symptoms, diagnosis and treatment.") After the insertion of a stent, clopidogrel is used in combination with aspirin for one month.
- Further treatment of patients with symptoms or signs of ischaemia on ECG and normal myocardial markers
    - Symptom-limited exercise test performed within 2 to 4 days.
    - If the patient has symptoms or signs of ischaemia during the exercise test or signs in ECG at a low pulse-pressure product, refer immediately to angiography.
    - In case of no symptoms or signs of ischaemia during light exercise or no signs in ECG, or if they occur only with a high pulse-pressure product, begin conservative treatment and elimination of risk factors. Prophylaxis can be intensified by adding clopidogrel to aspirin.

Organizing Treatment

- UAP is a serious but often curable syndrome. A well-organized care pathway and efficient follow-up care ensures that the appropriate treatment can be given rapidly.

Related Evidence

- Intravenous heparin combined with aspirin is probably effective compared to aspirin alone in reducing myocardial infarction or death, but the number of patients studied is too small for statistical significance (Oler et al., 1996) [**C**].

Definitions:

Levels of Evidence

A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
B. Moderate research-based evidence. At least one relevant, high-quality study or multiple adequate studies.
C. Limited research-based evidence. At least one adequate scientific study.
D. No research-based evidence. Expert panel evaluation of other information.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. The type of supporting evidence is identified and graded for select recommendations (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate diagnosis and treatment of unstable angina pectoris
- Appropriate assessment of coronary heart disease risk factors
- Reduced rate of myocardial infarction and death

POTENTIAL HARMS

Low-molecular-weight heparin can cause bleeding complications.

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
Staying Healthy

IOM DOMAIN

Effectiveness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Unstable angina pectoris. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2006 Mar 15 [Various].

ADAPTATION

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

DATE RELEASED

2001 Apr 30 (revised 2006 Mar 15)

GUIDELINE DEVELOPER(S)

Finnish Medical Society Duodecim - Professional Association

SOURCE(S) OF FUNDING

Finnish Medical Society Duodecim

GUIDELINE COMMITTEE

Editorial Team of EBM Guidelines

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Authors: Editors

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

GUIDELINE AVAILABILITY

This guideline is included in "EBM Guidelines. Evidence-Based Medicine" available from Duodecim Medical Publications, Ltd, PO Box 713, 00101 Helsinki, Finland; e-mail: info@ebm-guidelines.com; Web site: www.ebm-guidelines.com.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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