Complete Summary

GUIDELINE TITLE

Additional perioperative assessment. In: I guidelines for perioperative evaluation.

BIBLIOGRAPHIC SOURCE(S)

Committee on Perioperative Evaluation (CAPO), Brazilian Society of Cardiology. Additional perioperative assessment. In: I guidelines for perioperative evaluation. Arq Bras Cardiol 2007;89(6):e194-7. [20 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Any condition requiring surgery

GUIDELINE CATEGORY

Evaluation
Prevention
Risk Assessment

CLINICAL SPECIALTY

Anesthesiology
Cardiology

Critical Care
Nuclear Medicine
Radiology
Surgery
Thoracic Surgery

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To refine and unify the terminology used by the entire multidisciplinary team, including the patients and their family
- To establish new routines, change indication for surgery according to the information obtained during the perioperative evaluation

TARGET POPULATION

Any patient who requires surgery

INTERVENTIONS AND PRACTICES CONSIDERED

1. Circumstances for requesting non-invasive cardiac testing
2. Resting left ventricular function testing (transthoracic echocardiography, nuclear ventriculography, contrast ventriculography)
3. Exercise electrocardiography
4. Myocardial scintigraphy with and without pharmacologic stress testing (e.g., dobutamine, dipyridamole), as appropriate
5. Dobutamine stress echocardiography
6. Holter monitor (routine use not recommended)
7. Coronary cineangiography (routine use not recommended)

MAJOR OUTCOMES CONSIDERED

- Perioperative adverse coronary event rate
- Perioperative cardiovascular complications
- Perioperative cardiovascular mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

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. Sufficient evidence from multiple randomized trials or meta-analyses
B. Limited evidence from single randomized trial or non-randomized studies
C. Evidence only from case reports and series
D. Expert opinion or standard of care

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The participants of these guidelines were chosen among health sciences specialists with hands on and academic experience, thus being characterized as clinical researchers.

The adopted methodology and evidence levels were the same as those used in earlier documents by the Brazilian Society of Cardiology.

Recommendations

- The guidelines must be based on evidences.
- Class division must be used when applicable.
- Degrees of recommendation must be used when applicable, according to the levels of evidence.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Degree or Class of Recommendation

Class I: Conditions for which there is evidence for and/or general agreement that the procedure/therapy is useful and effective

Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of performing the procedure/therapy

Class IIa: Weight of evidence/opinion is in favor of usefulness/efficacy

Class IIb: Usefulness/efficacy is less well established by evidence/opinion

Class III: Conditions for which there is evidence for and/or general agreement that the procedure/therapy is not useful/effective and in some cases may be harmful

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

The definitions for levels of evidence (A-D) and classes of recommendation (I-III) are provided at the end of the "Major Recommendations" field.

Non-invasive Testing

Moderate-risk patients who will be submitted to vascular surgeries should always have a non-invasive test to detect myocardial ischemia (**Class I, Level of evidence D**).

Recommendations for Requesting Non-invasive Tests

Class I

- Indicated for patients with intermediate clinical predictors and who will be submitted to vascular surgeries

Class IIa

- Indicated when at least two of the three items below are present
    1. Presence of angina functional classes I or II, history of myocardial infarction or pathological Q wave, previous or compensated heart failure, diabetes mellitus or renal failure
    2. Low functional capacity: less than 4 maximum exercise tolerance units (METs)
    3. High-risk surgeries: peripheral vascular surgeries or aortic surgery, lengthy surgeries with considerable blood loss or shifts in body fluids

Class IIb

- Indicated for patients who have not undergone functional testing in the previous two years and who have
    1. Coronary artery disease or
    2. At least two risk factors for coronary artery disease (CAD) (hypertension, smoking, dyslipidemia, diabetes mellitus, positive family history)

Class III

- In patients who are not candidates for myocardial revascularization and whose non-cardiac surgical plan cannot be changed because of the results of a functional test.

Recommendations for Analyzing Resting Left Ventricular (LV) Function

Class I

- Clinical suspicion of aortic stenosis; **Level of Evidence B**

Class IIa

- Patients with congestive heart failure (CHF) without previous assessment of ventricular function; **Level of Evidence D**
- Grade III obesity; **Level of Evidence D**
- Preoperative assessment of liver transplant; **Level of Evidence D**

Class IIb

- Detection of valvular heart disease; **Level of Evidence B**

Class III

- Routinely for all patients; **Level of Evidence D**

Recommendations for Requesting a Perioperative Exercise Electrocardiogram

Class IIa

- Indicated when the two factors below are present
    1. Presence of intermediate clinical predictors of risk: angina functional class I or II, history of myocardial infarction or pathological Q wave, previous or compensated heart failure, diabetes mellitus or renal failure
    2. High-risk surgery: aortic or peripheral vascular surgeries, lengthy surgeries with considerable blood loss or shifts in body fluids

Class IIb

- Indicated for patients without a functional assessment in the previous two years and
    1. Known to have coronary artery disease
    2. With at least two risk factors for CAD (hypertension, smoking, dyslipidemia, diabetes mellitus, positive family history)

Class III

- In patients who are not candidates for myocardial revascularization and whose non-cardiac surgical plan cannot be changed because of the results of a functional test
- Routinely for all patients

Dobutamine Stress Echocardiography

Evidences indicate that low-risk patients will not benefit from non-invasive tests unless their functional capacity is low (<4METs) and they are candidates for high-risk surgeries (**Level of Evidence B**). On the other hand, patients with 3 or more minor clinical predictors should be considered intermediate-risk patients. (**Level of Evidence D**) All patients with intermediate risk for cardiac events and low functional capacity (<4METs) and those with good or excellent functional capacity (>4METs) who will be submitted to high-risk surgeries (**Level of Evidence B**) must undergo stress echocardiography. Consider doing a coronary cineangiography in patients with major clinical predictors for cardiovascular events. (**Level of Evidence B**).

Recommendations for Stress Echocardiography/Stress Myocardial Perfusion Scintigraphy

Class I

- Indicated for intermediate-risk patients who will be submitted to vascular surgeries

Class IIa

- Indicated when at least two of the following factors are present
    1. Presence of intermediate clinical predictors of risk: angina functional class I or II, history of myocardial infarction or pathological Q wave, previous or compensated heart failure, diabetes mellitus or renal failure

2. Low functional capacity: below 4 METs
3. High-risk surgeries: peripheral vascular or aortic surgeries, lengthy surgeries with considerable blood loss or shifts of body fluids

Class IIb

- Indicated for patients who have not been submitted to functional assessment in the previous two years and
    1. Known to have coronary artery disease
    2. With at least two risk factors for CAD (hypertension, smoking, dyslipidemia, diabetes mellitus, positive family history)

Class III

- In patients who are not candidates for myocardial revascularization and whose non-cardiac surgical plan cannot be changed because of the results of a functional test
- Routinely for all patients

Recommendations for Coronary Cineangiography

Class I

- High-risk non-invasive test
- Presence of major clinical predictors
- High-risk acute coronary syndrome
- Positive non-invasive test with proven ischemia and LV dysfunction

Class IIa

- Low- or moderate-risk non-invasive test with preserved ventricular function

Class III

- Patients who are not candidates for myocardial revascularization

Definitions:

Levels of Evidence

A. Sufficient evidence from multiple randomized trials or meta-analyses
B. Limited evidence from single randomized trial or non-randomized studies
C. Evidence only from case reports and series
D. Expert opinion or standard of care

Class of Recommendation

Class I: Conditions for which there is evidence for and/or general agreement that the procedure/therapy is useful and effective

Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of performing the procedure/therapy

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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for most of the recommendations (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Effective use of perioperative cardiovascular testing
- Reduction of risk for perioperative cardiovascular complications and mortality
- Prevention of perioperative cardiovascular complications
- Prevention of perioperative cardiovascular mortality

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

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Patients with aortic aneurysms should not be submitted to dobutamine or exercise stress whereas dipyridamole should be avoided in the presence of bilateral carotid stenosis greater than 70%.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Data or scientific evidences are not always available to allow all the different situations to be analyzed. As customary in medical practice, minute analysis of the patient and problem and the common sense of the team must prevail.
- The surgical intervention does not finish when the patient is bandaged or leaves the operating room. The concept of the word *perioperative* includes the need for a postoperative surveillance whose intensity is determined by the individual level of risk of the patient.

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
Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

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

DATE RELEASED

2007

GUIDELINE DEVELOPER(S)

Brazilian Society of Cardiology

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Brazilian Society of Cardiology

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Not stated

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Support: Committee on Perioperative Evaluation (CAPO), Brazilian Society of Cardiology

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the *Journal of Arquivos Brasileiros de Cardiologia*.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on June 3, 2008. The information was verified by the guideline developer on July 2, 2008.

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